NRA MEMBER U.S. WE DO OUR PART

Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves
PUBLISHED WEEKLY BY TELEPHONY PUBLISHING CORPORATION
608 S. Dearborn Street, CHICAGO, Telephone Wabash 8604

H. D. FARGO, President and Treasurer
S. R. EDWARDS, Editor and Secretary
H. D. FARGO, Jr., Vice-President and Advertising Manager
D. C. SORENSEN, Western Advertising Manager

Entered as second-class matter September 4, 1908, at the postoffice at Chicago, Ill., under act of March 3, 1879.

Volume 105
Number 11

CHICAGO, SATURDAY, SEPTEMBER 9, 1933

Subscription — 10 Cents a Copy
$3 a Year, U. S., Cuba and Mexico
$4 Canada, $5 Other Countries

Blue Eagles For Telephone Companies

Agreement Reached August 31 by United States Independent Telephone Association With National Recovery Administration for Companies to Obtain Blue Eagle Insignias by Substitution in President's Re-employment Agreement

On Thursday, August 31, as stated briefly in last week's issue of Telephony, the United States Independent Telephone Association reached an agreement with the National Recovery Administration in Washington relative to substitutions in the President's Re-employment Agreement. This agreement provides the way for Independent telephone companies to obtain the Blue Eagle, should they not wish to accept the provisions of the President's Re-employment Agreement in its entirety.

There is no legal compulsion for a company to sign the President's Re-employment Agreement (see Telephony of August 19, pages 9 and 10) or the substitute agreement of the United States Independent Telephone Association.

The substitute sections for the President's agreement as finally accepted by the National Recovery Administration on August 31 are the same as published in Telephony of August 26 except for a change in Section 8, paragraph (b). This read originally:

"(b) Office boys or girls, learners, messengers and casual employes may be paid not less than 80 per cent of the minimum wage fixed in this code, provided the total amount paid to such employes shall not exceed in any calendar month 10 per cent of the total amount paid by such employer to all employes of that company."

This was changed to read:

"Learners may be paid not less than 80 per cent of the minimum wage fixed in this code; but the total number of such learners in any one exchange shall not exceed 5 per cent of the total number of employes of that exchange; provided, however, that each exchange shall be allowed at least one learner."

There was a typographical error in the last paragraph of Section VII as published in Telephony through the substitution of the word "their" for either. The correct wording of that clause is: "Provided that in *either* case this shall not require wages in excess of $12.00 per week."

The complete story of agreement, substitutes and instructions as to how companies may obtain the Blue Eagle is given in a bulletin dated September 1 and mailed to all member companies of the United States Independent Telephone Association. It reads:

"A letter has gone to you today from our Chicago office stating that agreement was reached last night with the National Recovery Administration under which our companies are able to obtain the Blue Eagle through substituting sections four to eight, inclusive, of our code for paragraphs two to seven, inclusive, of the President's Re-employment Agreement. This agreement involved changes in section eight where the second paragraph was changed to read as follows:

Learners may be paid not less than 80 per cent of the minimum wage fixed in this code; but the total number of such learners in any one exchange shall not exceed 5 per cent of the total number of employes of that exchange; provided, however, that each exchange shall be allowed at least one learner.

In order to overcome a rule of the Administration that they will allow only one set of substitutions by an industry for any of the provisions of the President's Re-employment Agreement, it was necessary to arrange to have the substitutions approved August 11 for the companies of the Bell Group changed to 'substitutions for the Telephone Industry.' This involved the changing of the 'Code for the Bell Group' to a 'Code for the Telephone Industry.'

The Administration was insistent upon this procedure, although both Bell and association officers agreed the better plan would be to have the code submitted by the association for Independent companies changed to a code for the telephone industry, as the association code is better suited to the needs of the smaller exchanges.

As the Administration insisted on their procedure, the association requested the Bell Group to comply, which they did. Thus the 'Bell substitute agreement' became an 'agreement for the industry.' It then was necessary to arrange for changes in this agreement to meet the needs of our companies. This involved petition for exceptions.

The association filed a petition for all Independent companies. This blanket petition was approved so that the substitute agreement was amended by replacing it by sections four to eight, inclusive, of our code.

Under this arrangement it will not be necessary for any individual company to file a petition for an exception unless it desires further modifications of the agreement.

All companies desiring to sign the Pres-

ident's Agreement as amended by this substitute agreement are required to add this clause to their certificate of compliance:

To the extent of National Recovery Administration consent, as announced, we have complied with the President's Agreement by complying with the substituted provisions of the code submitted for the telephone industry.

We enclose a copy of our request for exceptions of August 31, 1933, and the letter of consent of the Administration of that same date. Keep these for your files.

You will notice in the letter from the Administration the first step toward getting the Blue Eagle is to 'sign the President's Re-employment Agreement *without qualification.*' Some of our companies have objected to signing without adding some qualifying phrase.

We suggest the addition of this clause to paragraph 14: 'And subject to the substituted provisions of the code submitted for the telephone industry and exceptions thereto as consented to by the National Recovery Administration August 31, 1933.'

U. S. Independent Telephone Association,
By F. B. Mackinnon, President."

* * *

Copy of Request for Exceptions.

Washington, August 31, 1933.

"Policy Board,
National Recovery Administration,
Washington, D. C.

Sirs: In compliance with your request that arrangements be made for the code submitted on August 11 by the American Telephone & Telegraph Co. for the Bell System group to be modified so that it will be a code for the telephone industry, the president of this association, F. B. MacKinnon, submitted the matter to the American Telephone & Telegraph Co. through its vice-president, E. F. Carter, who in turn discussed the question with other officials of the company and was authorized to state to Mr. MacKinnon and to the National Recovery Administration that such a change in the scope of the code is acceptable to the American Telephone & Telegraph Co. and the companies of the Bell Group.

This change in the scope of the code itself automatically changes the scope of the substitutions, authorized by your board August 11, to be made in the President's Re-employment Agreement by the Bell companies, so that those substitutions will be available to all companies in the telephone industry.

This association respectfully requests that in order to meet the needs of its smaller companies, those in classes 5 and 6 as set forth in the code submitted by the Bell Group, certain exceptions to the substitutions be authorized by inserting in place of clauses 4, 5, 6, 7 and 8 of the substitutions allowed the telephone industry the following clauses:

(a) In exchanges in classes 1, 2, 3 and 4, companies shall not work any employe for more than 40 hours in any one week.

In exchanges in classes 5 and 6, companies shall not work any employe longer than the normal work week in effect at such exchanges on July 1, 1933, and in no case for more than an average of 48 hours per week in any 90-day period.

No company shall reduce the hours of telephone service operation below those in effect July 1, 1933.

(b) The maximum hours fixed in paragraph (a) shall not apply to small exchanges where the service does not require more than two switchboard operators on duty at any one time, which exchanges are not in the immediate trade area of a larger exchange; nor to employes on emergency maintenance and repair work, nor to employes in a managerial or executive capacity who now receive more than $35.00 per week, nor to line patrol and repair men in isolated places, nor to watchmen, nor to very special cases where restrictions of hours because of emergencies would result in interruption or impairment to service to the public.

Employes engaged in night work may be subject to call at any time for a night time period of 12 hours, but shall not be required to perform actual work in excess of the maximum hours of work provided in paragraph (a) hereof.

(c) No company shall pay any employe at the rate of less than:

(a) $15.00 per week in any exchange in class 1.

(b) $14.50 per week in any exchange in class 2.

(c) $14.00 per week in any exchange in class 3.

(d) $13.00 per week in any exchange in class 4.

In exchanges in class 5 the companies shall increase the wages paid on July 1, 1933, by not less than 20 per cent, and in exchanges of class 6 the companies shall increase the wages paid on July 1, 1933, by not less than 10 per cent, provided that in either case this shall not require wages in excess of $12.00 per week.

(d) The minimum wage fixed in paragraph (c) may be at the rate of $1.00 per week less in the southern part of the country than the rate specified in said paragraph (c). The southern part of the country is defined as including the following: Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Maryland, District of Columbia, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas.

Learners may be paid not less than 80 per cent of the minimum wage fixed in this code; but the total number of such learners in any one exchange shall not exceed 5 per cent of the total number of employes of that exchange; provided, however, that each exchange shall be allowed at least one learner.

Respectfully submitted,

United States Independent Telephone Association,
By F. B. MacKinnon, President."

* * *

Consent of Administration.

National Recovery Administration,
Washington, D. C.
August 31, 1933.

"United States Independent Telephone Association,
Washington, D. C.

Gentlemen: We hereby acknowledge receipt of your letter of August 31, 1933, requesting a change in the title of the code presented for the Bell System group so that it shall cover the entire telephone industry. At the request of the National Recovery Administration, the Bell System group of telephone companies have consented to changing their code and substituted President's Agreement approved August 11 by replacing the words 'Bell System Group of Telephone Companies' with the words 'Telephone Industry.'

This consent makes it possible for Independent telephone companies to become parties to the President's Re-employment Agreement which was approved for the Bell Group on August 11 by General Johnson.

The P. R. A. Policy Board has considered the exceptions to the telephone industry agreement as requested in your letter of August 31 and recommended to the exceptions office of the Blue Eagle division that these exceptions be approved. This the Blue Eagle division has done. We, therefore, advise you that the proper procedure which the Independent telephone companies should follow to get their Blue Eagle is as follows:

1. Sign the President's Re-employment Agreement without qualification and mail it to the nearest district office of the Department of Commerce.

2. After complying with the provisions of the Agreement sign the certificate of compliance, adding only the following clause: 'To the extent of N. R. A. consent as announced, we have complied with the President's Agreement by complying with the substituted provisions of the code submitted for the telephone industry.'

3. Upon presenting this certificate of compliance to your postmaster, you will receive from him your Blue Eagle. This letter may be used by your members as their authority in conducting their industry under the telephone industry substitutions as modified by the exceptions requested by you and allowed by the Blue Eagle Division.

(Signed) L. D. Tompkins,
Industrial Advisor.
(Signed) W. J. Woolston,
Labor Advisor.
(Signed) William P. Farnsworth,
Legal Advisor,
(Signed) Robert T. Stevens,
Chairman, P. R. A. Recovery Board.
OK (Signed) Hugh S. Johnson."

Scrapping Customs That Cramp Profits

Telephone Sales Experiences—Increasing Usage of Telephone Service to Retain Customers—Suspending Service Connection Charges to Stimulate Recovery of Stations—Unique Publicity Contest Based Upon Item Published in "Telephony"

By T. De Witt Talmage

Appreciative and sympathetic regard for customers' problems is one element in business conduct which achieves great ends in a quiet, subtle way. By that I mean that the seemingly small act which requires a little extra time or care—the ideas and suggestions you carry to your patrons, the hundred and one small things you can do to express your personal interest in their welfare and progress, and from which no immediate advantage to you may be apparent—is one of the secrets of the success of many individuals and companies.

Telephone men and women have made enviable records in their efforts to acquaint the public with the policy of the industry to adequately serve them in a pleasing manner. Such sincere actions go a long way toward convincing our customers that we are actively striving to furnish them with a grade of telephone service that meets their every requirement.

MAKING ENDS MEET.

The most priceless asset of any industry is an open-minded management, adaptable and responsive to changing conditions and keenly alive to the necessity for everlasting self-scrutiny.

What can we do to improve our product? To better our service? Unless an executive is willing to face this daily cross-examination, he might as well retire. He certainly cannot keep his place if he resists progress.

A careful analysis of new conditions has been responsible for revamping certain time-honored practices, with the result that extra services once frowned upon by some telephone men are now being used to help make ends meet by providing new sources of revenue. Two different methods of determining the charge for one of these extra services are described in this article on "Scrapping Customs That Cramp Profits."

The publicity contest, which is also outlined in this timely discussion, is an adaptation of an idea originating in a news item in "Telephony" of March 18, 1933. It is a novel method of getting the community to "sit up and take notice" of the many valuable services rendered by the telephone.

Such advertising programs offer an opportunity to point out to the public how telephone service can be included in the subscriber's budget to make ends meet better.

No company is serving its community to the fullest extent unless it puts forth every reasonable effort to have a telephone installed in the home of every family in the territory—and to keep it working there. After several years of fighting to retain telephones in service, one of the most difficult reasons to refute for a disconnect order is: "We appreciate the advantages of the telephone, both from the standpoint of convenience and protection, but we simply cannot afford to pay for the service."

One hustling manager scrapped or discarded as useless the idea of accepting the situation as one where it was not worth while to do anything because no one had any money. Instead, he took the situation as a challenge in which it behooved both himself and his customers to bestir themselves and get some money.

One example of his resourcefulness is the case of a woman who ordered her telephone disconnected because of her inability to pay for the service. This woman had an excellent reputation for culinary skill. To make a long story short, this indefatigable manager adroitly assisted her in several ways to get started supplying local families with bread and pastry—and, of course, her telephone played an important part in soliciting orders and carrying on her baking business.

Few people will buy from you these days on the basis of friendship or brotherly love—it's a cold-blooded proposition where you must show them the dollars-and-cents' side of the deal from their own viewpoint; and when you reach that point in your sales work, you will find little or no resistance.

There is one lesson that everyone must learn sooner or later. It is that half-hearted efforts won't get you very far in any job. The tendency on the part of some salesmen to give up after the first or second siege of concentrated effort, loses many a sale that is three-fourths made and thus results in a lot of wasted energy that could be capitalized with a little more determination and persistance.

The hard-working manager just mentioned, who sold the woman the idea of keeping her telephone, had to make four trips before he finally convinced her that telephone service was valuable enough to justify her to make an extra effort to keep it.

Popularizing Telephone Usage.

Many telephone subscribers feel that they have no need for our service just because they do not use the telephone enough. The more a telephone is used and the more the "telephone habit" is acquired, the more valuable the service becomes to the subscriber. If our customers can be shown how they can use the service more effectively to realize the fullest benefits and get the biggest return for their telephone dollar, they will be more inclined to keep the service.

"No Company Is Serving Its Community to the Fullest Extent," Says Mr. Talmage, "Unless It Puts Forth Every Reasonable Effort to Have a Telephone Installed in the Home of Every Family in the Territory —and to Keep It Working There."

Do not depend too much upon the ingenuity of patrons to devise and initiate new uses of telephone service. The job of pointing out the value, convenience, and necessity of our present service—as well as developing new uses of the telephone—is *our* job. And for our own benefit, if for no other reason, this obligation should be more generally realized.

An Illinois company is now planning to precede each drive for new business with an intensive campaign aimed at encouraging and increasing the use of its service. It is systematically attempting to increase the calling rate or number of originating calls to better instill the telephone habit into the lifeblood of the community. The keynote or theme of this campaign is: "Save—Use Your Telephone More—Save." Such a program aids to retain stations now in service as well as fertilizing the territory for the sales drive which immediately follows.

The Nebraska Telephone Association recently sponsored a similar business recovery campaign. The slogan adopted for this campaign was: "A Telephone in Every Home and More Calls from Every Telephone."

Telephone service is worth what you are willing to make it. One industrious manager has increased the usefulness of his service by installing an amplifying unit in one of the operator's telephone circuits to use in connection with the "general ring" for making announcements over code-ringing party lines. The volume output of the operator's voice is adjustable so as to meet the requirements of varying numbers of circuits which may be connected at any one time.

This arrangement is used freely to announce matters of a public nature, such as storm warnings, bank robberies, national disasters, and similar occurrences, as an integral part of the service. The equipment is especially valuable in notifying an entire neighborhood in the case of fire or other emergency, because the operator can regulate the output so she can be heard distinctly by 100 or more subscribers at one time.

These general call facilities are frequently used by merchants to announce special sales and openings, arrival of carload lots of fruit, flour, potatoes, or other goods that they wish to be taken directly from the railroad car. One of the most common uses of this service is to notify the community of the date of farm sales. By talking on four or five circuits at one time, it usually requires about one-half hour to deliver a message of reasonable length, say 250 words or thereabouts.

When this service is used as an advertising medium, a charge is made. The advertising announcement rate is five cents per circuit, when less than the total number of available circuits is used. For announcements over the entire group of 80 circuits, a flat charge of $3.00 is made.

The manager writes regarding this service: "We have delivered several general commercial messages recently and the results have been exceedingly satisfactory. One merchant announced a special sale on sugar, and sold about four tons the next day."

Another company has broadened the scope of its service by securing each morning the prices paid locally for grain, live stock, and produce, and any subscriber calling for "Markets" is given this information.

Market News Service

Still another successful Independent telephone company has popularized the telephone, especially among the rural patrons, by adding a "market report service" to its already long list of distinctive communication services.

This plan differs slightly from that just mentioned because it was found that in towns of a certain size there were usually competitors in grain, livestock, and farm products, whose prices frequently varied and it was not possible for the telephone company to quote a price from one dealer without giving a price from his competitor. Naturally there is a certain amount of commercial advertising value accruing to the various firms when they are specifically mentioned by name.

The best solution in this case seemed to be to offer the service on a monthly rate basis to the various dealers, and sell it to them. The company has been quite successful in selling this service in a great many of its exchanges.

In all cases, the announcements are made by the subscriber purchasing the market news report service, or by one of his employes. Employes of the telephone company are not permitted to make these announcements. This is to prevent the possibility of a misunderstanding which might involve the telephone company in legal liability for unintentional error or mistake.

The charge for this announcement service over the rural lines every day except Sunday and holidays varies from $3.00 to $10.00 monthly, depending upon the number of rural circuits within the exchange area. The regular monthly statement carries this charge, and it is collected in advance the same as local exchange service. The concerns using this service seem well pleased with it and the farmers have been more than pleased with it.

Recently this company had a campaign among its rural territories to reconnect tel-

COMMUNITY SPIRIT

By Miss Anne Barnes,
Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

It was a dark, dreary, hot July morning in the little town of Hocum. One hot blast of wind after another scurried along downtown sidewalks and streets, picking up dirt and litter, hurling them through open windows and doorways. It was to be a great day in Hocum—the merchants were putting on their annual July clearance sales. The Toonerville train had puffed and smoked up to the little red depot at the foot of Main street and discharged an unusually large number of people, who had come to the sale.

"There will be a lot of butter-and-egg money in circulation, today," smiled Mary Jones into her transmitter as she plugged briskly away on her switchboard. Nobody in Hocum was in a better position than Mary to know, by eight o'clock in the morning, that a good crowd could be expected in spite of the weather. Her board was always busy when anything out of the ordinary was going on in town. Besides, she had advertised this sales day by a general ring every morning and evening for a week.

She had asked Bob, the repairman, to go over her cords so as to be sure they were all in working order.

"Maybe it will rain and you wont have any crowd to handle," he teased.

"Well, I want to be ready, crowd or no crowd. I will be in shape to handle the traffic via the telephone route if all 18 pairs of my traffic cops are in good condition for action.

"Look at those two cops at the end of my board. They have been in the hospital for a week. One has a scrapey throat and the other stutters. Fix them up, Dr. Bob; I will need them. I will have the service of only 16 pairs most of the time anyway, for Hetty Stone, and two or three others like her, visit for such long stretches."

Mary had set her house in order for a big, busy day. Even the unfavorable weather conditions this July morning did not daunt her sales-day mindedness.

She put her very best effort, early in the morning, into delivering her last general sales-day advertising to her rural subscribers. She felt rewarded for her efforts when the calls commenced to come faster and faster, bright and early. Her 18 pairs of soldiers were in service most of the day.

The editor of the Weekly Argus declared that, according to reports of merchants, it was the most profitable July sales day they had had in years. And Mary was well pleased with her unusually big bunch of toll tickets.

Moral: If all the people in every community, large and small, would get together, plan together, and work together in their own towns, instead of waiting for the "big shots" in Washington to do something, I believe Old Man Depression would sneak around the corner.

So, instead of waiting for Prosperity to come from around the corner, everybody should get *busy* and chase Old Man Depression around the corner.

ephones, and the officials found the best selling argument to be the fact that they are now providing this market report service.

The experience of this company knocks into a cocked hat the intimation that new

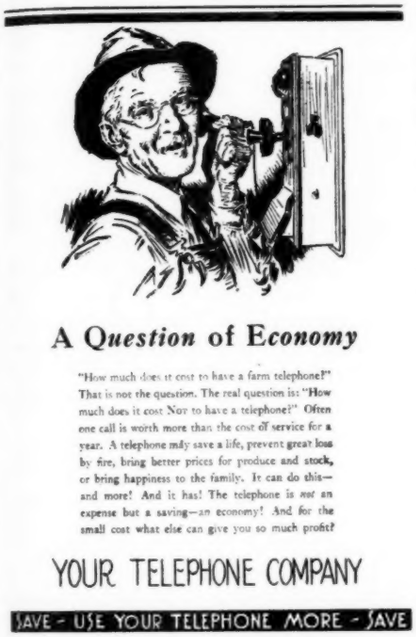

A Question of Economy
"How much does it cost to have a farm telephone?" That is not the question. The real question is: "How much does it cost NOT to have a telephone?" Often one call is worth more than the cost of service for a year. A telephone may save a life, prevent great loss by fire, bring better prices for produce and stock, or bring happiness to the family. It can do this—and more! And it has! The telephone is not an expense but a saving—an economy! And for the small cost what else can give you so much profit?
YOUR TELEPHONE COMPANY
SAVE - USE YOUR TELEPHONE MORE - SAVE

Fig. 1. This Shows, in Reduced Size, a Widely-Used Advertisement to Which Has Been Added at the Bottom a Slogan Aimed at Encouraging the Use of Telephone Service as an Economy Measure.

sales arguments are not effective at this particular time in aiding telephone service salesmen to bring in much-needed business. Possibly a fair trial of other extra services will be all that is needed to convince us that our stand on similar propositions is cramping our profits.

Back in 1918, just after the government had assumed control of the communication systems of this country, it was decided that certain service connection charges covering to some extent the average cost of the initial expense of establishing service to new subscribers and of furnishing additional facilites to old subscribers, should be paid by such subscribers and should not be borne by the entire body of telephone users.

Thirteen years later, in the fall of 1931, this charge was readjusted in Illinois with a view of stimulating business and thus combatting station losses. Exchanges of less than 1,000 stations secured the greatest reduction in this rearranged schedule.

However, since March 1, 1931, the Illinois Commerce Commission, up to the time of this writing, has granted 59 requests of 27 individual companies to suspend this service connection charge for periods of various lengths. These 27 companies operate more than one-third of the Independent exchanges in Illinois. The suspension of this rate eliminates from the picture a charge that was usually rather difficult to explain to the customer's entire satisfaction.

Regarding the beneficial effect of temporarily discontinuing this charge, one manager says: "If we are to secure any amount of new business or get our former subscribers to come back, it is necessary to make the way as easy as possible. We found it was particularly difficult to secure any considerable number of subscribers with the service connection charge in effect, particularly in our smaller communities where they realize that there was not very much work or effort expended in restoring service or making the installation.

"There is no doubt that the suspension of these charges has an immediate effect on securing business—that was our experience the first month following the suspension. However, it is difficult to estimate the value at this time, as we have been without these charges for so long, but it removes a great many arguments. We feel that we are going through a promotional period again and that all the telephones we have lost must be secured once more. The revenue loss from this source is probably offset by the good will created."

There is more general agreement at this time than ever before on the fact that we must keep constantly hammering away by advertising to drive home the value and economy of our service.

There have been a number of worthwhile publicity contests sponsored by telephone companies in various states in an effort to make the public "telephone-minded" and, incidentally, furnish the companies with fresh ammunition loaded with local interest for their advertising messages. One of the most unique contests was planned by the enterprising manager previously mentioned.

The basis of this contest was suggested by an item that appeared in TELEPHONY which described a customer who kept a list of telephone calls made in her home for one month. The importance of the calls was weighed against the amount of the telephone bill at the end of the month. It is reasonable to assume that the longer the list of the calls, the more justified the bill would be in the mind of the average subscriber.

This contest was based on the furnishing of a small memorandum booklet by the telephone company which was to be used for recording all calls made from a telephone in a certain month. There were 300 blank spaces provided in the booklet for listing ten calls per day. The bottom of each page carried one line suggestions for new uses of the telephone, while printed on the inside of the booklet cover were the rules of the contest.

An interesting feature of this plan was that participation in the contest was not limited to only telephone subscribers. Non-subscribers were invited and encouraged to take an active part. In fact, special prizes were set aside for non-users who compiled the best lists of "calls I might have made by telephone."

Prizes were awarded in four general classifications: rural subscribers, town subscribers, rural non-subscribers, and town non-subscribers. The chief divisions in each classification were: the most interesting record of calls, the longest record of calls, the greatest variety of calls, the neatest record of calls; and a prize for the most unique use to which the telephone was put during the month of the contest.

One of the most effective pieces of advertising produced in the Independent field is a 16-page booklet explaining how to make the rural telephone more useful. This booklet, entitled "The Weaver of Speech," was printed in two colors by the Minnesota Telephone Association. Nearly 300,000 copies have been distributed to telephone subscribers from Maine to California.

To tie in with this movement to educate the customers to use their service more frequently and emphasize the value of the rural telephone, this same association has also made available a well-arranged poster

HOW MUCH IS IT WORTH to a FARMER?
(Without leaving his premises)
• to get word to the doctor in case of sudden illness or accident!
• to summon help quickly when fire breaks out!
• to call the veterinarian for sick or injured stock!
• to order and get quick service on repair parts for machinery needed at once!
• to find and hire help for special work!
• to inquire about and compare market prices!
• to take quick advantage of special bargains offered by merchants!
• to make definite arrangements to see friends and acquaintances, thus avoiding unnecessary, long trips!
• to be able to talk to people by long distance though they may be hundreds of miles away!
• to notify the sheriff or police when chicken thieves and prowlers are known to be in the neighborhood!
• to receive prompt notice from shipping associations that peak prices are being offered!
• to notify the oil man that the supply must be replenished, or the feed grinder that more feed is needed at once!
• to be able to talk to or locate the children when they are away from home!
• to notify the folks at home where other members of the family are so that they will not worry!
• to keep in close contact with friends and relatives wherever they may be!
• to arrange parties, get-togethers of all kinds and make plans for meetings, church affairs, etc.!
• to get the latest news of local happenings and keep others posted!
• to have the comfort of knowing that the telephone is always there, ready to help in every emergency and offer its conveniences at any time of the day or night!
In This Day and Age, Can Anyone Afford to Be Without Telephone Service?
You need it!
Telephone convenience pays its users in big savings of time, money and work—and offers priceless protection and security!
Minn. Telephone Assn.

Fig. 2. A Cardboard Poster Arranged by the Minnesota Telephone Association. This Placard Can Be Conveniently Used to Keep the Value of Rural Telephone Service Constantly Before the Farmers' Eyes. Look Over These 18 Suggestions and Ask Yourself the Question: "In This Day and Age, Can Anyone Afford to Be Without Telephone Service?"

headed: "How Much Is It Worth to a Farmer? (Without leaving his premises)."

This placard lists 18 specific uses of rural telephone service. It can be used in villages and towns, where the rural stations are an essential part of the list of

subscribers, by placing it in barber shops, gasoline service stations, general stores; and in particular courthouses, town halls, schools, sale barns, and other places where farmers congregate. Some companies even made a quarter-page newspaper advertisement of this material.

Up until just recently it has been a common belief that telephone operating men could not write good telephone advertisements. The idea seemed to be that they were too much interested in details and in the technicalities of the business and that they were inclined to greatly over-estimate what the public knows about telephone service; that they write about the things they are interested in and like to talk about rather than the things their customers want to know. In other words, they are sometimes unable to get the proper viewpoint.

A man in high place in the telephone industry remarked that this fallacy should be scrapped along with the idea that telephone companies have nothing to advertise. For proof of his statement he presented a huge scrapbook filled with telephone advertisements which he had gathered from many sources during the past several years. He graded each advertisement on the basis that one of the essential qualifications of a good advertisement is that it centers the mind of the reader upon the product or service, not upon the message itself. Eighty-seven per cent of the advertisements received his approval!

Advertising is neither a magic producer of business nor a fake side show. It is a form of specialized sales help: its province is not so much to create actual and immediate business as to create interest and desire before the salesman arrives on the job, and to strengthen the interest of the prospects and customers after the salesman has gone on to others—thus making the job of selling telephone service more effective and easier.

Most companies have taken it for granted that business will not come back by itself but will have to be brought back. Do not hesitate—just because you happen to be familiar with the difficulties of your community—to "talk up" and sell telephone service. It is one thing to appreciate a customer's problem but it is an entirely different thing to be over-sympathetic with his plight.

Let us settle in our own minds the fact that stiff competition for Mr. John Public's few dollars is not something to be dreaded but is an invitation to spur us on to greater achievements. Kites rise against the wind—not with it.

Prices in the Metal Markets.

New York, N. Y., September 5: Copper—Quiet; electrolytic, spot and future, 9c asked. Tin—Firm; spot and nearby, $45.87; future, $46.25. Lead—Steady; spot New York, 4.50c; East St. Louis, 4.35c. Antimony—Spot, 6.87c.

SELLING THE SERVICE

By JOHN G. REYNOLDS.

1. Be alert to every opportunity to make a sale, and your sales record will soon be at the top. The other day an exchange repairman was working on a case of line trouble in a large store. He noticed that the cashier had to get up and leave her booth, on numerous occasions, to answer the telephone which was about 12 feet away. Did the repairman pass up this perfect chance for a sale? Well, I should say not! Before many minutes had elapsed he had sold the store manager on the idea of an extension for the cashier's booth.

2. After you make a sale of telephone service, always endeavor to obtain a few names from your new subscriber of homes which are without telephone service. Follow up the leads obtained in this manner and much new business will come your way.

3. When a "change of address" order comes your way, make a note of the old address. If possible find out who is going to be the new tenant. If you cannot find out, keep an eye on the place and when it is occupied broach the subject of adequate telephone service to the new tenant.

4. Keep away from arguments. A sales manager once told his salesman: "Never argue with a prospect. The correct time to argue with a prospect is after you have sold him and gone home."

5. Keep all talk of the depression and present-day business conditions out of your sales talk. Forget the depression and talk NRA; your prospects will find it easier to sign on the dotted line.

What Operators Want to Know

Change in Routine Where Connection Is Transferred to a TX, RX or CLR Position—Revised Practice for Completing One-Switch Connection Involving Toll Circuits or Ringdown Trunks—No. 115

By MRS. MAYME WORKMAN,
Traffic Supervisor, The Illinois Telephone Association, Springfield, Ill.

Operators, who were formerly required to remain cut in after transferring a connection to a TX, RX, or CLR position until a call, report, or order has been passed by the calling operator and satisfactorily acknowledged by the called operator, are now permitted to cut out as soon as the called operator answers and receives a response from the calling operator.

A change has also been made in the routine for completing a one-switch connection involving either toll circuits or ringdown trunks and in completing a multi-switch connection at the last intermediate office to a toll center reached over a direct circuit. Through connections are now handled as follows:

ONE SWITCH: A through operator, in establishing an undelayed through switch, will proceed in accordance with the former practice, except that she will cut out of the connection as soon as she has rung the called office. Also a through operator, upon receiving an order to ring on an established connection, will cut out as soon as she has rung. However, upon receiving an AG order on an established connection, she will ring and remain cut in until the called operator has answered and received a response from the calling operator.

A calling operator will understand that a through operator, in completing a one-switch connection, will not remain cut in to repeat the ring in case of a slow answer and will AG the order for a circuit at the end of 15 seconds instead of 30 seconds as heretofore.

MULTI-SWITCH: A through operator, in establishing an undelayed multi-switch connection to a toll center reached over a direct circuit, will proceed in accordance with the former practice except that she will cut out of the connection as soon as the called operator has answered and received a response from the calling operator. She will follow the same procedure upon receiving an order to ring on an established connection.

In order that the through operator may recognize that the connection is multi-switch, the operator passing an order to ring will prefix the word "Multi-switch" to the order.

This concludes the review of the recent changes in the toll operating practice.

Questions from Illinois Operators.

1. If a subscriber calls in and asks to have his call tried again before the subsequent attempt time is due, is "AG" and the time written by the side of the subsequent attempt time, or beneath it?
2. Is it the right thing to hold the calling party on the line if a distant operator requires your ticket?
3. If a party drops a report charge at one pay station and later goes to another and asks to have the call completed from there, should the full amount be charged or should the report charge be deducted?
4. When are call orders left?
5. Should the toll center operator notify a tributary operator when a call placed as a station-to-station call happens to be a P. B. X. and requires a person-to-person rate?

For answers to these questions from real Illinois operators, please turn to page 13.

Some of the Myths of Telephone History

Many Stories Regarding Invention and Development of Telephone Entirely Imaginative—Article Based Upon Various Records in Historical Library of American Telephone & Telegraph Co.—Courtesy of Bell Telephone Quarterly

By William Chauncy Langdon,
Librarian, American Telephone Historical Collection

Human nature is idealistic. But much that is idealistic is not therefore ideal. Mankind is often chary of the facts, content to get along with a few of them instead of anxious for all of them. Even, or especially, in the immutable realm of the past, we are prone to feel that what we think ought to have been, was so. This is essentially the trouble with much written history.

An imaginative statement once invented and promulgated, the present purposes and immediate interests of active life and business bring their pressure to bear in its favor. In this way are many myths born. For the rest, we glide care-free back through the past, seeing things indiscriminately, some of which like the Ichthyosaurus have come and gone through evolution, and some of more purely mythical character have come and stayed.

Among the best authenticated instances of telephone myths stands the pathetic figure of Joshua Coppersmith. Joshua had a clever father, whoever he was. The son is plausible in form, and he still wanders up and down the land, doing odd jobs filling space in worthy periodicals.

Like other famous characters, his birthplace is variously credited—to New York, to Boston, to "somewhere in the East." There is reason, it may be stated, to add to the list an enterprising town in the Middle West. Naturally no one of his editorial sponsors has thus far been able to cite for verification the name of the newspaper and the date on which the news of Joshua Coppersmith was first printed, but this it may be unreasonable to ask.

Whatever it was, the story goes that:

A man about 46 years of age, giving the name of Joshua Coppersmith, has been arrested in New York for attempting to extort funds from ignorant and superstitious people by exhibiting a device which he says will convey the human voice any distance over metallic wires so that it will be heard by a listener at the other end.

He calls the instrument a "telephone" which is obviously intended to imitate the word "telegraph" and win the confidence of those who know of the success of the latter, understanding the principles upon which it is based. Well-informed people know that it is impossible to transmit the human voice over wires as may be done with the dots and dashes and signals of the Morse Code, and that, were it possible to do so, the thing would be of no practical benefit.

The authorities who apprehended this criminal are to be congratulated, and it is to be hoped that his punishment will be prompt and fitting that it may serve as an example to a horde of other conscienceless schemers who enrich themselves at the expense of their fellow creatures.

There are a number of little slips in this story to arouse suspicion. The offense charged is extortion, rather than swindling. But the man is said to have exhibited the device. Why then would not a simple demonstration have either confirmed the charge or justified the defendant? But the appeal is rather to the indefinite "well-informed."

On analysis, as often proves to be the case, the real implication is against the press and the courts, the one for apprehending and the other for demanding long imprisonment on a charge that any way you take it, will not hold water. But alas, newspapers and periodicals still amuse themselves by harassing the poor man, now long past a hundred years old, although there never was any such man. In all fairness and kindness, old Joshua's ghost should be allowed to rest in peace.

Myths naturally grow in profusion around the hero. So has it always been; and so is it likewise in the case of the telephone.

One of the major myths of Alexander Graham Bell—and curiously one of the most popular—is that on more than one occasion he offered to sell telephone stock for ridiculously low prices, for $10 a share and even $1.00. One story declared that he offered a share of stock for a meal, because he was so poor. How rich this person's own father or grandfather would have been if he had only loosened up and accepted the offer, was a matter for computation.

These tales all reflect, of course, on the acumen of those who refused the golden opportunity, but nonetheless these dreams of the might-have-been seem to be favorites with their sons and grandsons.

Now, what are the facts? Alexander Graham Bell was in no way interested, nor was he at all active in the business side of the development of the telephone. He was absorbed in the scientific side of the invention and in its human possibilities, what it could do for mankind—for men and women and children in their daily lives. He never peddled stock; nothing could have induced him to do it. Nor was there any need for him to undertake it.

In the hands of the wise Gardiner Greene Hubbard and the experienced Thomas Sanders, with Theodore N. Vail added in the summer of 1878, there was no need for Mr. Bell to try anything of the kind. He never sold a single share of stock for the company. As to his selling his own personal stock, he had only 10 shares in his own name in the early days. All the rest of his 30 per cent of the stock he gave to his bride as a wedding present.

The flower of the telephone stock myths is the one relating that at the Centennial Exhibition in Philadelphia in 1876 anyone could talk through the telephone for 25 cents and buy a share of stock for 4 cents. But there was no telephone stock at all at that time; not until August 1, 1877.

It would seem that there must have been some basis for these stories. How did they start? Those who relate them are mostly people of honesty and intelligence, entirely sincere. It may be there were some instances in which the stock was issued by one of the local agents who were organizing telephone exchanges under licenses from the Bell company.

More likely it may have been the stock of one of the acoustic telephone companies, that put out the "lovers' telegraphs," the two-tin-cans-and-a-string playthings. Some of these instruments were quite practical for short distances. But the stock was not that of the Bell Telephone Co., or of either of its successors, the National Bell or the American Bell Telephone Co. The two men who certainly knew—Thomas Sanders, the treasurer, and Charles Eustis Hubbard, the secretary—both of them

Natural Law of Development.

There is a natural law that obstacles develop unsuspected powers of accomplishment. This is notably true in finding one's opportunity for useful and productive living.

In times of easy prosperity, the tendency is to drift with the current into routine positions with expanding organizations.

In times of depression, on the other hand, a man must find and perhaps create his own opportunity, and he is spurred on by the necessity to make the most of it.—Dr. Karl T. Compton, president, Massachusetts Institute of Technology.

wrote signed statements that telephone stock was never sold for less than $50 a share; and those statements are now in the American Telephone Historical Collection.

Telephone stock sold on the market for the first time in the summer of 1879—for $110; and following the settlement of the so-called Western Union case, it sold in December, 1879, for $995. In that whole price range no one was very scornful! Since then the prices of telephone stock have been a matter of record. So the whole history of telephone stock is covered from the date of the first issue to the present.

It is easy after 40 or 50 years for the memory to slip in the matter of dates by a year or two. Still more is it easy, indeed natural, if there be involved a distinction between different companies, or between two radically different kinds of apparatus, such as between the acoustic telephone which operated merely by physical impulse, and now long since forgotten, and Alexander Graham Bell's telephone, which transmitted speech by means of electricity.

There have been two contradictory myths directly connected with the inventor of the telephone. They were closely related to each other; it may be the one sprang out of the other. The one avers that Bell's invention of the telephone was an offshoot of his work for the deaf; indeed, that he invented the telephone to enable the deaf, especially his wife, to hear and to speak.

Alexander Graham Bell was deeply interested in the education and the welfare of the deaf all his life; it was his chief interest and was central among his many varied interests. As for the sentimental motive, there never was any occasion for him to invent anything of the kind for Mrs. Bell's benefit. She spoke very intelligibly and could read readily the lips of anyone with whom she was conversing before Mr. Bell ever met her, and she never was really, in the proper sense of the term, his pupil.

There is an essential distinction that many people ignore between those who are hard of hearing—even very hard of hearing—and those who are really deaf. Mrs. Bell was deaf, had become so through scarlet fever when a little child. So, too, Mr. Bell's five-year-old pupil, George T. Sanders, was absolutely deaf, born deaf. The telephone could not possibly help either of them.

The development of amplification and selectivity which have been accomplished by the Bell Telephone Laboratories in the audiphone during the last ten years, will greatly help those who are hard of hearing; but the telephone can do nothing for those who have no auditory nerve.

Except that Bell, in pursuing each of his varied lines of research, always kept his mind alert for anything that might apply to any one of his other lines of work, his work for the deaf did not lead to the invention of the telephone. Indeed, Bell got started in his work for the electrical transmission of speech several years before he became interested in the deaf.

The other myth connected with his work for the deaf is that Alexander Graham Bell very soon turned against the telephone and would not even have one in his house. A tragically romantic eventuality! One of the gargoyle incidents of the history of science and of civilization! Alas for the sternness of truth that checks the throbbing tear! He discontinued his work on the telephone because he believed he had completed his part in the development and that others could do what had now to be done, whether technical or commercial, as well as he could or better.

Also, and even more, as has been said, his chief interest was in his work for the deaf. He wanted to get back to that great human work. No, there was nothing morbid or abnormal about his attitude toward the telephone. He appreciated it, and heartily honored those who carried on his work, saying years later that he could hardly believe that he had ever had anything to do with this wonderful means of nation-wide communication.

There is in the American Telephone Historical Collection a contract dated April 1, 1881, and renewed in 1886, between Alexander Graham Bell and George C. Maynard, agent of the American Bell Telephone Co., calling for telephone lines between Dr. Bell's residence, his laboratory and the homes of his family and of relatives, with an additional telephone line to his laboratory—eight miles in all! And during the latter part of his life Dr. Bell had a telephone in every room of his house, except his private study and the parlor.

So, too, at his summer home on Prince Edward Island, he had a private telephone line six miles long going around the Bras d'Or Lake to Baddeck; he had three telephones in the house and a telephone in every building on the place—even, for emergencies, at the little cabin deep in the woods where he used to go alone for uninterrupted thought.

Far from turning against the telephone, no one could have shown a more practical appreciation of it than he, nor taken it more intimately into his daily life. The only fact that can have given rise to this myth is that Dr. Bell did not want a telephone in his own private work room.

If anything under the sun be only big enough, it is easy to subject it to attack. The Lilliputians appreciated this when they saw Mr. Gulliver and they forthwith proceeded to tie him up. Telephone history supplies for the convenience of mythology a similar giant, the telephone litigation of 1878-1893 et seq.

Myths grow luxuriously in the rich soil of litigation. Any moderately attractive myth-germ can get started in it and have a 50-50 chance of coming through to wide acceptance, for as sure as one side wins, the other side loses. In the minds of the losers then it is incontrovertible that the decision was all wrong; that the court itself was, must have been, prejudiced (a suspicion never entertained until after the decision); and what could so clearly have been behind the wrong decision of a prejudiced court as—money?

So the banner of the lost cause is raised over the battleground and the soil is fertilized for any promising young myth that may hope to cut a figure in this cruel world. If perchance the court was conspicuously unanimous in its wrong decision, what proof could there be more positive of judicial subserviency to the will of the victorious litigant? And there you are.

Consider then the deplorable conditions in the telephone litigation, in which there was a tangled mass of no less than 600 lawsuits, all of them decided in favor of Alexander Graham Bell as incontestably the actual and the first inventor of the telephone. So not a few vigorous little myths crawled from out the larva stage and the fostering care of interested parties and soon winged their way to the credulous belief of a sympathetic public.

Unfortunately a few hard facts are necessary to the full appreciation of this interesting phenomenon of the mythological lepidotera and of the beauty of their flight. But these facts may be briefly presented. The 600 lawsuits of the telephone litigation in regard to the validity of the Bell patents may be divided into two parts. The first consists of one single case, the so-called Western Union case; the other part consists of the remaining 599 cases. That first case had real merit.

It presented to the court a real issue for decision: Did Bell merely invent an instrument, as the Western Union Telegraph Co. contended—in which case the Western

The Biggest Word in Selling.

The biggest word in selling today is resourcefulness!

There was a time when a salesman had everything in his brief case that he needed to obtain a fair volume of business. Today, the material in his brief case may help; but it is the kind of material in his head that really lands or loses the order.

People used to buy equipment such as ours because others found it profitable. Now, no matter what we can point out in the way of facts that show how other people are profitably using our equipment, we must show each individual prospect how and where he can use our equipment to his own profit.—C. E. Steffey, vice-president, Addressograph-Multigraph Corp.

Union's inventors, Elisha Gray, Amos E. Dolbear and a young man by the name of Thomas A. Edison who had invented telephone instruments, had *not* infringed Bell's patents; or, as the Bell Telephone Co. contended, did Bell not merely invent an instrument, but discover how to use electricity for the transmission of speech—in which case Gray, Dolbear and Edison and the Western Union Telegraph Co. *had* infringed the Bell patents?

This case ended without a judicial decision by the admission of the counsel of the Western Union Telegraph Co. that the Bell patents were valid, that the Bell contention was correct, and that the only thing for his clients to do was to settle. This was done. The agreement was signed on November 10, 1879, and the settlement was approved and confirmed by the court. It is obvious that no judicial decision could have settled the matter in a more positive way.

Soon it was evident that there was a future for the telephone. There speedily sprang up countleses infringing companies whose activities may be characterized generally as selling as much stock as they could to the public before they were sued for infringement and stopped by injunction—with, in some cases, the hope in reserve that they might win out and fall heir to a negotiable interest in part or all of the telephone industry and the emoluments thereof.

The Bell Telephone Co. and its successors, of course, had to sue all of these for infringement. There resulted, in the words of Mr. Justice Brewer of the United States Supreme Court, "the most important, the most protracted litigation that has arisen under the patent system of this country." The record of this litigation takes up 149 volumes.

The defendants in these cases availed themselves of many varied expedients to complicate the progress through the courts, reintroducing depositions and witnesses from other cases and sometimes with slight changes resubmitting issues that had essentially already been decided. Few cases, if any, stood alone independent of other cases. Indeed, the litigation as a whole constituted an involved, inseparably tangled network. Yet in the end Alexander Graham Bell and the telephone company won the litigation as a whole and every single lawsuit in it.

This outline is enough to understand and enjoy the inception of two of the most far-reaching myths in the history of the telephone. The first of these sprang from the activities of an interprising character, Dr. Seth R. Beckwith, a man so shrewd and so resourceful as to make him a truly fascinating figure. To say that he was consummately able is not, however, to say that he was strictly scrupulous, except in the masterly discrimination with which he pursued his own ends.

Dr. Beckwith appreciated the possibilities of the telephone business; he appreciated that it was a big business and that it could be a bigger business. He appreciated that anyone who undertook to contend with the Bell company must be ready for stiff litigation. He laid his plans accordingly.

In February, 1883, he organized the Overland Telephone Co. in New York and proceeded to organize under it eight other Overland telephone companies as the beginning of a network of Overland companies covering the whole country. These were skillfully co-ordinated with each other for purposes of concerted action, and at the same time kept skillfully interseparated from each other for purposes of legal strategy.

He retained for himself 7,200 out of 10,000 shares of the stock of the main company, and took the position of general manager, so that he controlled the company in every point of policy and of operation. For his apparatus he secured the telephone patents of one Myron L. Baxter of Aurora, Ill. The application for these patents was filed in December, 1882, and they were issued in May, 1883.

Answers to the Traffic Questions Presented on Page 10.

1. "AG (time)" is entered under the last report on the ticket.
2. Yes, but not to exceed the time allowance for holding the calling party on the line.
3. Secure the total charge for the message, less the amount of the report charge already collected, enter it in the "charge" space and refer the ticket to your supervisor. If the call originated at your toll center, the supervisor will write "bill (amount in 'report' space) to (telephone number of first station)" on the back of the ticket. The supervisor will enter her personal number and encircle the amount in the "report" space, in green, to call the attention of the rate operator to the necessity for writing a ticket to carry the report charge.
4. A call order is left when you encounter NC: on a built-up circuit call on the first route at a time when you have previously tried the alternate route and a circuit was not immediately available; on a call to a place reached over a ring-down trunk, when a report of "all trunks busy" is received.
5. If the TTC does not deal directly with the tributary subscriber, this information should be given to the tributary operator so that she may advise the calling party of the change in the classification of the call. When the classification of a call changes, this information should always be given to the calling party before an attempt is made to complete the call.

It will be seen that Dr. Beckwith did not wait for the decision of the Patent Office on the merits of these patents; that was a secondary consideration. The Bell company instituted proceedings against the Overland company and the case promptly went to trial.

But Beckwith was not the man to neglect provision for future lines, either of retreat or of advance, as might be advisable. As the Overland case progressed during the summer and fall of 1883, Dr. Beckwith realized that his company might lose; he probably became convinced that it would lose. At any rate, on December 31, 1883, he quietly severed all connection with the Overland company, whether as director, stockholder, or general manager.

Accordingly when later the Bell company won the suit and an injunction issued against the Overland Telephone Co., he had no longer any connection with the company, and no restraining order or injunction issued against the said Seth R. Beckwith. He had eluded the pursuit and was free to make another attack. We are now no longer interested in the fortunes or misfortunes of the Overland Telephone Co. or of its attendant companies, no more than was Dr. Beckwith. Mythological possibilities followed the resourceful career of Dr. Beckwith. And so do we.

There was incorporated on April 2, 1883, in the state of New York, another telephone company, the Globe Telephone Co. There is nothing to show that Dr. Beckwith had anything to do with its organization, but it does not seem impossible that he instigated it as a reserve for use in case of need. It would be like him. Early in 1884, it began a tentative multiplication that suggested the plan of the Overland company.

Contrary to the practice in the Overland company, however, the Globe company remained singularly innocent of any commercial activity. A year later, the officers of the company certified that "$10,000,000 had been paid in, in the form of property necessary to the business, namely patents and patent rights, and stock had been issued therefor." These valuable patents seem to have been the telephone patents of one George E. Shaw, but it does not appear that either any practical or legal use was ever made of them.

Nothing happened in the Globe Telephone Co. for another year. They were careful not to do anything that might subject the company to an injunction for infringement. In June, 1885, however, Dr. Beckwith became interested in Antonio Meucci of Staten Island, and things began to happen. At the same time Beckwith began to use the office of the Globe Telephone Co. in the Mills Building in New York.

A continuity in events may be indicated by the fact that one of Beckwith's directors in the Overland Telephone Co., Erastus

Wiman, lived on Staten Island; he may have found Meucci for him. In August, 1885, Beckwith became a stockholder (5,000 shares) in the Globe Telephone Co. and its general manager. He said later that his services were confined to securing testimony regarding Meucci's inventions and evidence of fraud in the obtaining of Bell's patents. The last week of October, provocation having been sufficient, the Bell company sued the Globe Telephone Co. for infringement.

Meucci fitted perfectly into Beckwith's plans. From the Overland case Beckwith had learned that reliance on any telephone patents of later date than Bell's—such as Baxter's, or Shaw's—was vain. A claim must be based on new evidence, alleging invention prior to Bell's.

Meucci really had invented, years before, what could, in the loose phraseology of the time, be called a telephone. To be sure, it was an acoustic and not an electrical telephone. He had filed a caveat for it in the United States Patent Office in 1871 and later renewed it twice, but he was never granted a patent. For that matter, others had invented acoustic telephones before he did.

Further, Meucci was an aged Italian, 77 years old, a Garibaldi veteran; he could speak English somewhat, but not readily. All these circumstances were handicaps to Meucci's interests in court, but they were distinct advantages for Beckwith's purposes. In brief, Antonio Meucci made a romantic figure and his claim, properly handled, might be the instrument for breaking the Bell telephone patents.

Beckwith began the proper handling on the first day of the trial by pleading the age and foreign nationality of Meucci and of his chief witness, the 81-year-old Domenico Mariani, and getting permission to have their testimony taken in the form of depositions, and thus minimizing their appearance in court.

But the prospects in the Globe case proved to be no better than in the Overland case. So, about April, 1, 1886, without interrupting the court proceedings, Beckwith withdrew entirely from the Globe company; and while testimony was still being taken in that case, went over to Elizabeth, N. J., and started another company, still using the claims of Antonio Meucci—for which he offered the old man, but did not deliver, 100 of the 1,000 shares of stock, though retaining for himself only 690 shares—and boldly calling it the Meucci Telephone Co. of New Jersey.

Naturally Meucci and his personal attorney, David Humphreys, did not like Beckwith's abandoning him in mid-trial. When Beckwith was sued in New Jersey by the Bell company and proceeded to base his defense on Meucci's deposition, they objected strenuously, Humphreys accusing his former colleague and friend of "villainous misrepresentation" and so forth. But all that Beckwith could do was in vain.

Your Character Is What You Are; Build It Carefully.

It is vitally important that we all realize the deep significance of the statement: "No one can harm you but yourself. Your reputation is what people say you are, but your character is what you are."

Your reputation can be ruined over night; your character can never be assailed except as you assail it yourself, or as you build into the structure of your character rotten materials. And no matter what the world says about you, if you know yourself right, you can stand and face the issue. The whole crux of it is: KNOW that you are right.—Dr. A. E. Strath-Gordon before the Executives' Club of Chicago.

The Bell company won the Globe case, of course. While the Globe company appealed to the United States Supreme Court, it never filed its briefs. Beckwith gave up his defense in the Meucci Telephone Co. case in New Jersey. And that was the end.

But that was not the end of Meucci. Out of Beckwith's exploitation of him arose the myth of Antonio Meucci as the inventor of the telephone.

It was the most natural thing in the world under the circumstances that Antonio Meucci himself and his Italian friends, not understanding the technical differences involved nor following easily the court proceedings, should believe that he had been defrauded and that the Bell company was to blame for this miscarriage of justice. The banner of the lost cause was raised and under it many loyal Italians here in America have rallied ever since. Such a belief would, of course, supply them with a simple solution of the whole matter, and blind them to the real issue in the case. Yet there is not and never has been any ground for this belief.

This issue was very simple. As has been said, what Meucci invented was an acoustic telephone. Acoustic telephones operate by direct physical impulse and work very well over a short distance. Meucci's did. Alexander Graham Bell, on the other hand, discovered how to use electricity in the transmission of speech. By physical impulse the voice travels through the air, as in ordinary talking, singing or yodeling, at a speed of about 1,100 feet a second; through a string or metal wire, maybe a little faster. By electricity the voice goes at the rate of 185,000 miles a second.

This was the basic element in Bell's invention which was in no way a development of the acoustic telephone. Meucci thought he was using electricity. But with all respect, be it said, he was mistaken—nor is it surprising that he should be. He was not a trained scientist; his various inventions were not the result of the systematic scientific research, as were the inventions of Edison, Elisha Gray or of Bell.

In his caveat, Meucci stated that his "system consists in isolating two persons by placing them on glass insulators, employing glass for example at the feet of the chair or bench on which each sits." Probably he thought this would keep the electricity in, prevent it from escaping. Nowadays, of course, everyone knows that the glass insulation would prevent there being any electric current at all. But Meucci's apparatus would work equally well with the insulation and without. Certainly; because it worked by physical and not by electrical impulse.

Myths are strange affairs. They are like clouds floating across the sky, none of them, even the highest, really very far from the ground. Like the myths in this article, they are quite different—heavy or light—some ephemeral and amusing, some grotesque, hardly to be taken seriously, some sinister. And they all speedily or slowly melt in the blue sky or pass on over the earth out of sight, are gone and forgotten.

One more may be recounted here, the strangest of all, a dark cloud bearing tragic unhappiness in its piled-up masses and muttering with the distant echoes of a storm. It is the myth of Elisha Gray.

Elisha Gray was one of the prominent inventors of the latter half of the 19th century. He was thorough and systematic in his researches and experiments. His great invention was the multiple telegraph. While he was working on that, he gave some time and interest to the possibilities of transmitting speech by electricity.

He succeeded in transmitting musical tones in that way. But that was a very simple matter compared with the transmission of the extremely complicated overtones of speech, which required an entirely different kind of electric current from the make-and-break current of telegraphy. Gray put his tentative ideas into form in February, 1876, and filed a caveat therefor in the United States Patent Office on February 14.

But Alexander Graham Bell had invented his telephone nine months before, on June 2, 1875, and he then had a patentable article. In order to have his invention patented at the same time in England and America he delayed filing his application until February 14, 1876, when he filed it, as it happened, a few hours earlier than Gray filed his caveat. The technical difference between the two is important.

A caveat serves notice with the Patent Office that the inventor expects to invent something, whereas an application asserts that the invention has already been completed. Therefore, on February 14, 1876, Elisha Gray filed notice that he expected to invent a telephone, whereas Alexander Graham Bell filed notice that he had invented a telephone. In subsequent litigation the question of Elisha Gray's claim that he

(*Please turn to page 26.*)

Here and There in Telephone Work

The Art of Reading Working Drawings and Circuits, Part 6.

By John A. Bracken.

Before there can be a flow of electricity, a complete circuit must be established. Such an electrical circuit is indicated in Fig. 1, where it is compared with a simple hydraulic system. The switch and valve serve identical purposes; that is, the control of the flow of electricity and water separately.

Referring to the water pipe and pump illustration, Fig 1, the difference in hydrostatic pressure between two points in the system is expressed in pounds per square inch. In the electric circuit, the difference in electrical pressure, or potential, between two points is measured in volts. This illustrates the similarity between pressure drop and potential difference at various points in the system.

When the valve is closed so that no water flows, the pressure gauges all indicate the same reading. In like manner, the voltmeters in the electric circuit all show the generator terminal voltage when the switch is open, so no current flows.

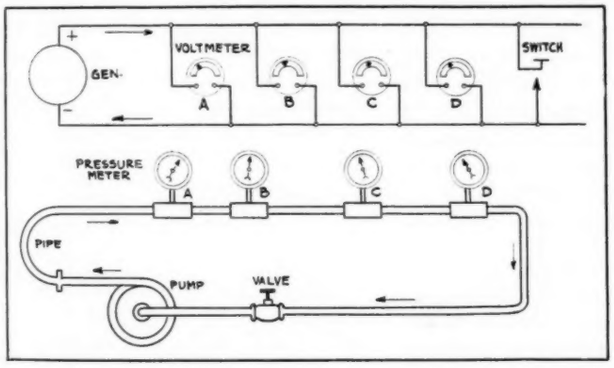


Fig. 1. Simple Electrical Circuit Compared With a Simple Hydraulic System.

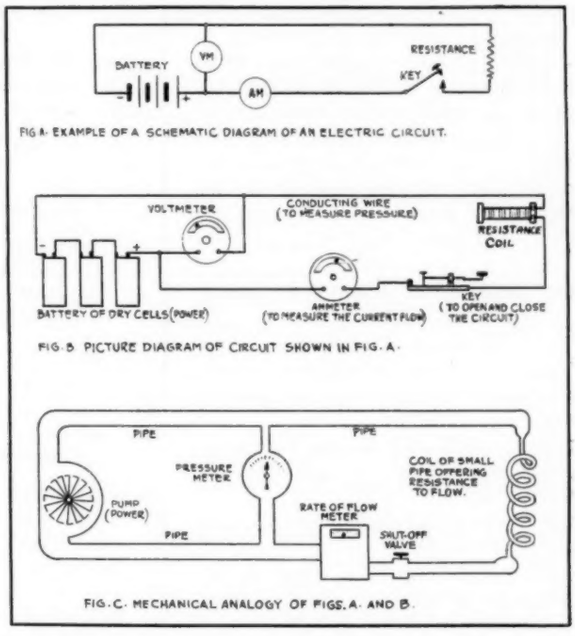


Fig. 2. Various Type of Drawings.

Open the valve, and a uniform drop in pressure is noted on the gauges, gauge A showing the highest reading and D the lowest. The same condition exists in the electric circuit: when the switch is closed and the electric current is flowing, the voltmeter, B, indicates a lower reading than voltmeter A; C is lower than B; and D is the lowest of all. The difference between the readings at A and D is termed the difference of potential.

To produce an effect with any medium, be it water, air, electricity, magnetism, etc., a force, push or pressure is always necessary. With the electric current, this pressure is usually called difference of potential, electromotive force, or simply voltage; and with a magnetic circuit it is called magnetomotive force. In case of water and air, the force is called pressure.

From all this it is evident that the telephone circuit engineer has within his reach various coils, whether inductive or non-inductive or having one or several windings, and in the condenser, a variety of electrical apparatus for circuit work. The condenser affords a means for transmitting alternating electric currents, and for excluding steady or direct currents. The retardation coil likewise affords a means for readily transmitting direct currents but practically excluding voice currents or fluctuating currents.

By the use of these very simple devices it is possible to sift out the voice currents containing, as they may, both direct and alternating currents; or it is possible in the same manner to sift out the direct currents and leave the voice or fluctuating currents alone to traverse the circuit.

The electromagnet coils which operate relays and switching devices are often used as impedance or retardation coils in portions of the circuit through which it is desired to have only direct currents pass. If it is necessary to place a relay having considerable impedance, directly in a telephone-talking circuit, its bad effects on the voice currents are usually eliminated by shunting the relay winding with a comparatively high non-inductive resistance or a condenser of suitable capacitance.

The voice currents will flow around the high impedance of the relay winding, through the non-inductive resistance or the condenser, while the direct currents flowing in the circuits, which are the currents that must be depended upon to operate the relay, are still forced in whole or in part to pass through the relay winding.

In a similar manner an induction coil affords a means for keeping two parts of a telephone circuit completely separated, so far as the direct flow of electric current between them is concerned, and yet of readily transmitting by electromagnetic induction, currents from one of these circuits to the other. Here is a means of isolation, so far as direct current is concerned, with complete communication for alternating currents.

The induction coil is, perhaps, the simplest type of alternating current apparatus. Essentially it consists of two electric circuits interlinked by a common magnetic circuit. Usually the two electric circuits are insulated from each other. They are termed primary and secondary, each consisting of a set of coils of insulated copper wire wound on a laminated core of soft iron.

The windings of the induction coil are made round and are usually laid over one another, so as to reduce magnetic leakage. The winding of the induction coil, which is connected to the electric current supply source, is termed the primary, while the winding connected to the receiving load is termed the secondary.

With the secondary winding on open circuit, the self-induction of the primary limits the current almost entirely, the resistance of the winding being negligible in comparison.

Anything that decreases the self-induction of the primary allows the current input to increase. Enough current flows into the primary winding from the source to produce the magnetic flux which, by its rate of change, induces the counter E. M. F. of the induction coil. Under ordinary conditions this counter E. M. F. is nearly equal and opposite to the impressed E. M.

F. and causes the actual E. M. F. of the secondary.

As the direction of the induced E. M. F. depends on the direction of the magnetic flux threading the coil, it follows that two coils of insulated copper wire wound on a common magnetic core have at any instant, although the actual E. M. F. may be continually varying and alternating in character, a certain polarity with respect to each other.

In conclusion, it may be said that the ability to read drawings and circuit diagrams in the performance of telephone work is not only an advantage, but it also fortifies one to make illustrations of equipment or diagrams. Even when making insulations, repairs, or alterations, these may be so planned that every detail is worked out before actual work is started. This saves much time, expense and possible confusion.

Such ability is also of such value as to give one a better knowledge of how adjustments or replacements of apparatus can be made by studying the illustrations and diagrams. It also serves to keep one posted on the latest telephone engineering and other standard practices.

(*End of Series.*)

Some Telephone Things I Didn't Know Until Now.

By Oscar Will Tell

That a three-minute telephone conversation between New York and any point in Nicaragua costs $21.00.

That the Hawaiian Islands operate a total of 26,000 telephones and Bermuda 3,000.

That for your telephone there is no substitute.

That a loudspeaker system is used to call physicians to the telephone in a large New York hospital.

That by the end of 1932, extensions of the Bell System's overseas telephone service had interconnected 92 per cent of the world's 33,400,000 telephones.

That our globe is encircled with more than 300,000 miles of submarine cables, over 100 million miles of telephone wires and 5,000,000 miles of telegraph cables.

That a vacuum-tube amplifier, which operates from dry cells, is available for connection to a telephone for use of hard-of-hearing subscribers.

To determine how a friend has weathered the depression look him up in the telephone directory. If his name is still listed, then he has fared well; if his name is not listed, then perhaps he would have fared better if it were.

That samples of rubber used in the manufacture of telephone cords is sometimes tested to insure long life of the cords in service or storage, by placing it in an oxygen bomb at 300 pounds pressure at 70 degrees Centigrade for 48 hours.

That a trial installation was recently made in which, for the first time, carrier methods were applied to wires contained wholly in overhead cable for the purpose of deriving a number of telephone circuits from each pair of wires.

New Business Suggestion for Companies Dispaying Blue Eagle.

The drive of the NRA is being pushed forward—from the pledging of employers to aid in the campaign, to the enlistment of consumers to deal only with those organizations displaying the Blue Eagle. From Frank Witts, of Niantic, Ill., comes a suggestion for use by those telephone companies which are operating under the Blue Eagle insignia:

Will You Do Your Part?

By subscribing for telephone service? In the connection of your service you will be assisting industry to put men and women back to work, which is the intent and purpose of the NRA.

Please check the type of service you desire:

- ☐ Party line residence
- ☐ Business telephones
- ☐ Multi-party rural telephones
- ☐ Extensions

Name .....

Address .....

The Blank Telephone Co.

Form for Solicitation of Prospects Utilizing the NRA Appeal.

"In the language of our President," says Mr. Witts, "we are at war on Depression. Likewise, the telephone company should declare war on the borrower of telephone service and the prospect who can afford the service. There are many of these in every community who, when approached for taking service, offer the excuse that their neighbors do not have service.

"If the telephone companies hope to meet a part of the additional expense that is placed upon them by the adoption of the national code, it will be necessary for them to use some direct method that will be hard for the prospect to evade. With this thought in mind, I am submitting a form which may be useful."

Food for Thought When Operators Are Asked Favors.

By Geraldine Cleaver,
Chief Operator and Bookkeeper, West Iowa Telephone Co., Anita, Iowa

I wonder how many operators are able to distinguish the difference between being *obliging*—giving good, efficient service—and *cheating* the telephone company?

To illustrate what I mean, let me tell how one telephone company in Iowa is being cheated. An operator in the exchange in the town of Black, which is not its real name, told me of this practice:

A certain traveling man makes this particular town. When he happens to be in a neighboring town and wants to talk to two, three or four of his customers in Black, he places a station-to-station call to the operator in the Black exchange. When he gets the operator on the line, she will ring and let him talk to *all* of these customers of his on the *one* station-to-station call. The traveling man treats the Black operator when he arrives in town.

Thus the operator is not only cheating the telephone company—but is getting paid to do so. I do not know whether the operator in the town where the call originates, intentionally lets the man call three or four people on the one ticket—or if she just does not supervise close enough to know what he is doing.

All of us like to have our subscribers show their appreciation of service—we like to have their good will. We all like to be thanked—and we surely do appreciate it when a subscriber brings us a treat or a gift of some kind. But a subscriber should *never* feel that he is giving an operator a treat or a gift because the operator has rendered him service that she would not render, under similar circumstances, to any other subscriber.

Nor should subscribers feel that they are rewarding an operator for giving them service that is not hers to give; service that in the giving, cheats the company, or service that is against all fair and just rules of operating and toll practices.

If eggs are selling for ten cents a dozen and a clerk gives a customer two dozen for ten cents, he is *not* a good clerk; he is simply stealing from his employer in order to appear a *good fellow* in the estimation of this particular customer. The operator who intentionally allows a man to have two or three calls for the price of one, is cheating just as much as the clerk.

It is easy to be a good fellow and give away something that costs us nothing. The clerk gives extra weight to a special friend: I wonder if he would give it if he himself were paying for it?

The operator, in the case mentioned, allows a man to have three personal calls—and he pays the telephone company, from where he places the calls, only for one station-to-station call. I wonder if the operator would be willing to pay for the extra calls?

The man who is receiving this free service at the expense of the telephone company, may be profuse in his thanks and seem most grateful for this unwise and unfair service. But, I wonder, if he were wanting to hire an employe, would he want to hire this operator; would he feel that he could trust her to work for his best interests?

Think it over!

Executives Discuss Phases of Traffic

An Operator's Work, Instead of Destroying Personality, Presents Opportunities for Self-Development by Observation of Human Life—In Pruning Overhanging Branches of Operating, Maintain a High Standard of Service

"Does An Operator's Work Tend to Destroy Personality?"

By An Old Telephone Manager.

My long experience in the telephone business has given me opportunity to observe the effect of the work of an operator upon her personality, and I shall attempt to record some of these observations for the consideration of those who would make of the operator a mere machine to grind out her work according to set rules, without regard to the fact that she is human and is dealing with other human beings.

No one knows better than I that rules and discipline are necessary and that the larger the number of operators in the working force, the more rules are required and the stricter discipline is necessary to render good service. At the same time, if we disregard the human element in our operators and attempt to run everything by the letter, rather than by the spirit, we are sure to create a condition that will prove a great disappointment to us if put to a strong test.

It is not our ability to act under ordinary conditions that measures our strength. It is the reserve force we carry that gives us the poise and confidence needed to face difficult situations and combat them successfully. It is so with our operators.

Every telephone manager knows the pleasure to be obtained from standing behind a long row of girls and listening to the perfect rhythm of, "Number, please?" and "Thank you," from one end of the line to the other with the continuous click of plugs and jacks and relays.

But this is as nothing compared with the thrill one receives when the fire bells ring, the ambulance makes a run or a sudden storm comes up, and the lights begin to flash in quicker succession; and those same operators rise to their feet, push back their chairs and meet the increased traffic with a zeal that approaches perfection.

In the earlier life of the telephone industry, the telephone operator was made the subject of jokes in the press, on the stage and in public address. This practice has almost ceased, due largely to a better understanding on the part of the public, and to the fact that these crude jokes came to be met with hisses in most audiences.

At the same time, the newspaper editor knew that he was allowing his columns to be used in a ridicule of one of his best servants and, in this day, no telephone joke that does not carry a real sense of humor is permitted to be published.

It is with regret, however, that we notice a revival of some of the time-worn telephone jokes of the past on the part of humorists who broadcast their programs over the radio. They are perfectly safe in a way for their listeners can not hiss at them but there are enough people interested in the telephone business to awaken them as to what constitutes a slam if we were to write in our protests.

Without trying to make any excuse for shortcomings on the part of our girls, we must not overlook the fact that telephone operators, like other folks, are usually judged by their worst performance, rather than their best. All too often, a perfect day is spoiled by failing to properly supervise a connection, or by an outburst of temper with the key open.

Those, who believe that the work of an operator tends to destroy personality, are led to think so because of the everyday sameness of her duties. If she were dealing with inanimate things instead of human beings, this would be true. When we remember, however, that in the course of a day, the operator comes in personal contact with every phase of human character, and meets those characters in every mood known to the human mind and heart, it is easy to see that her work develops personality, rather than destroys it.

Did you ever seriously consider just what constitutes a day's traffic through your switchboard? In a city of, say, 15,000 population it falls to the lot of the public to use the telephone more than 20,000 times each day, and what for?

There are the ordinary, everyday calls for the grocery, the market, the iceman, the laundry, the garage, the bakery, the dry-goods man and the drug store. These, no doubt, constitute more than half the calls handled each day and if the operator were to listen in, which, of course, she does not do, she would hear just about the same story over and over again. It is the smaller half that awakes within her something of interest in the affairs of humanity and causes her to reflect in her own nature a sympathy for those who she serves.

Now it may a childish voice, in all its innocence, calling for daddy; a playmate talking to his chum; a girl and her lover; husband and wife; patient and doctor; lawyer and client. It may be a neighbor woman engaged in neighborly gossip or a scandal monger sowing seeds of discord; perhaps it is a request for the final score of the ball game or an invitation to a party.

All too frequently, it is a call for the police department, the fire station, the ambulance or the undertaker. It might even be some man's wife calling another woman's husband or just the opposite. No, the operator does not listen in and she does not need to do so.

She soon learns from the manner of the person calling and the tone of the voice, just what the message is to be, and it would be a waste of time to "listen in." Those are the things that the operator "sees" going on before her eyes every day. Human life in all its aspects is spread out like a panorama before her.

In front of the switchboard, the operators sit as spectators, watching the great drama of professional, commercial and social life being acted upon the stage before them by thousands of subscribers, each one of whom contributes a part in the play of life. Each day is just another act in the drama.

The operators may be viewed only as scene-shifters but their opportunities for observation are unlimited, and in no other calling in life has a girl greater privilege of self-development of personality if she will honestly and earnestly apply herself to her work.

Pruning the Overhanging Branches of Telephone Operating.

By Margaret Celeste Grace,
Traffic Chief, Fort Dodge Telephone Co., Fort Dodge, Iowa

In these days of decreased business activity, which has included the traffic ebb and flow of the telephone industry in its nationwide hook-up, there is a pertinent striving and studying for ways and means to eliminate all superfluous modes of operating. All are endeavoring to simplify the phrases, procedures and routine mannerisms of the operator's technique, in relation to the telephone customer.

There are, of course, certain fundamental and basic forms of standard routine that must be maintained to insure the proper sort of good service, which we can and must be able to furnish the public.

After making careful and perspective studies, and from deductions of the past and present graphs of telephone traffic, it would seem to be the logical conclusion that the toll traffic will be the first to feel the pick-up from the present receding curve. It is the natural sequence which follows the fact that it is the toll user, mostly, who has kept his telephone instrument.

However, we still have an obligation to our force and public in the lean as well as the fat days. We have personalized and humanized our local service, as much as

good business ethics will permit, in the maintaining of a sound and dignified program of serving the public and keeping our house in order from the disciplinary standpoint of the operating room.

We have gone back to the former practice of 100 per cent toll operating; that is, eliminating the specialized operating, or restricted position management, such as a special operator for "In" and "Through," "C. L. R." and "Point-to-Point." And while we still use the routine of these specialized features, each operator performs all duties at her position.

In maintaining the same efficient high standard of operating, which has been the policy of the telephone companies before the toboggan ride of the traffic load (which in some localities and instances has toboganned to the very bottom of the hill) the greatest precaution must be taken to guard against the slipping of that standard. For in cutting down operating forces and eliminating too much or all supervision, that high grade of service will be lowered and the operating force will become careless and indifferent.

The proper stimulus must be given in a tactful but forceful manner to the depleted forces by the chief operator. This is no easy, "soft soap" job, but if the spirit of loyalty and the proper morale has been the cornerstone of the traffic structure it will be easier to appeal to that fine spirit of integrity and fairness which belongs to the true operator's code. Every operator has this code of honor as well as her operating codes, for it is a badge of the spirit of service.

The very close cooperation of the traffic and plant departments is of the utmost importance in rendering adequate, speedy and efficient telephone service.

Based upon the experience of well-managed telephone offices, it has been found that the completion of the customer's order while he remains at the telephone, the completion of delayed calls, the completion of inward and through calls, the accurate number ring and the pleasing and courteous completion of the local call, have all been made possible by the careful planning in office layouts, consideration being given to an easy and ready use of facilities to produce accuracy and speed.

In handling traffic, both local and toll, it is essential that someone with a viewpoint of the office, as a whole, be constantly in touch with the status of the traffic throughout the office in order that force and assignments be properly and promptly made. This is usually a part of the duties of the chief operator in most offices; in some larger offices these duties are performed by the traffic chief. This individual must keep in constant touch with the movement of traffic; must anticipate the changes in conditions and take special action to prevent the piling up or the slumping of the traffic load.

Now is an opportune time to polish up the tones of "Number, please?" and to put a touch of blossoming color into "Thank you." Also, to use the pruning knife or, in the vernacular of the day, cut out that overhanging branch, *impatience*. It is the perfect time to clear the chips off all shoulders, which may have been lodged or carried around for some time.

All these things interrupt good service; they clutter up the wires of clear enunciation and cause a "short" in the otherwise perfect routine and smoothness of efficient service we all are striving so hard to give.

So, with brightening cheer of summer skies and blossoms of faith, and the happy notes of the birds' songs, let us all take that highway, where the overhanging branches have been pruned, for the clear and speedy traffic lane of speech.

Building Up Telephone Service

Desirable Character-Building Elements in Employe's Make-Up to Build Service: Concentration, Initiative, Adaptability—Address Given Before Traffic Conference During Iowa Convention

By Grace Coan,
District Chief Operator, Western Telephone Corp. of Iowa, Denison, Iowa

When we think of the word "item," we think of something of small importance. However, the definition of the word is: "A separate article, or particular." So let us think of the three service items, which build up service, as particular items; and they must be in the employe's make-up before he can build up the service: Concentration, initiative, and adaptability.

Years ago, employes' fitness was not considered of the same importance as it is today. People were first employed, then put into the service pattern, whether they qualified or not. If they did not, there were many costly tangles in the service.

Concentration is the ability to focus the whole mind and thought upon the present problem, until a desirable solution is found; also to analyze the different angles of the situation, finally, bringing out the best practical plan.

If we train the student operator so that she will concentrate on the more common operating conditions, she will be able to answer more calls and complete them more efficiently, than if she had a slight knowledge of most conditions, with which she might come in contact.

If the long distance operator does not concentrate on her ticket work, it requires a great deal more clerical work, especially, if tickets must be mailed to a billing center. Oftentimes, if the name or number is not legible, the call is billed to the wrong subscribers, thus leaving an undesirable impression upon both customers. These errors may be avoided, if the operator studies both the face and the back of the ticket, before filing it with the completed calls.

Initiative is the ability to lead in introducing new ideas; to be able to make new plans, which will make the work less difficult, more improved, and more economical.

We should take advantage of every opportunity to increase our knowledge of our work. If we do this, we increase our value to the company and customers. When we attend a conference, we should not be afraid to ask questions, because operators and people in charge of the meeting are always glad to answer questions and give us any assistance they can.

If we do not have initiative, we must cultivate it; first by thinking things out for ourselves, then testing them with a trial, rather than always accepting suggestions from other people.

Adaptability is the ability to fit oneself into his or her environment; to change when the times change; adopt new views, opinions, methods, and instructions; not to stick to old practices, but to bring oneself up-to-the-minute; to alter oneself to be capable to handle any new situation.

If we do not adapt ourselves to the new methods, our work will show up as out-of-date, even slower then that of other employes. When new practices are put into effect, it is only after thorough study. They are decided to be an improvement in service or they would not be adopted.

One thing, which often impairs telephone development is that if our work is running along smoothly, we sometimes do not see the advantages of the newer methods. We should not be satisfied to remain as we are, but should strive for improvement in our selves and our organization.

All we have to contribute to our company is ourself. If we are unfortunate in lacking any one of these three items in our make-up, we cannot possibly make as good employes as those who are endowed with all three. So we must cultivate them.

Sometimes, we wonder why other employes seem to get on better and have more favorable appointments given them by employers than we do, when we believe that we are working just as hard and are just as loyal as they are. The difference is: they are not hampered by the lack of one or more of these essential character-building elements.

Let us not fool ourselves into believing that some successful employes may be lacking in these essentials, but are carried to success by their personality.

The successful business man cannot build business on the strength of pleasing personality alone.

Outside Plant Men Talk Things Over

The Uneventful Life of a Telephone Trouble-Shooter.

By "Doc."

During my many years of telephone work I have met some very unusual and interesting characters. The most interesting of these were, I believe, the old-time groundmen generally referred to as "grunts, squeaks or ground hogs." They were perfectly contented with their lot and always refused promotion to lineman.

One might claim that these old chaps lacked ambition. Perhaps they did, but they were happy and contented, and that's more than can be said of most ambitious people. Those old hard-shells could tell a lineman exactly how to perform any difficult task on a pole, although most of them could not climb a step. Many of them could have run a gang with credit, but if offered the opportunity would have flatly refused.

Coming back to my own case, I was anything but a contented "grunt"; was overly ambitious and craved promotion. My contempt for a long-handled digging set increased daily, and it often even chased me in my dreams at night.

I remember well the first hole I ever dug. It was on a hot, dry summer day out on a western prairie. After much effort I finally worried it down to the five-foot mark on the shovel handle and was getting ready to move on up the line toward the water keg, when the straw boss came along and wanted to know if I had planned on setting the pole with the butt in the air. I had to admit that the hole was sort of funnel-shaped.

He then proceeded to instruct me in the manly art of hole-digging and explained that it should be even larger at the bottom than at the top so that the pole could be lined up properly when set. I surely had a lot of trouble with a digging bar enlarging that hole at the bottom. Ever after, I was careful to make sure and keep them the proper size from the ground level down to the finish.

The work seems easy when watching a man who knows how dig a hole in hard ground, but when first trying it, one is due for a surprise. Some men can dig a hole faster with a shovel in hard ground than others, not so skilled, with a shovel, spoon, digging bar and an able-bodied helper. Men unskilled in hole-digging generally start using the spoon about a foot below the surface. I enjoy watching a machine-digger working even today and to think what a help it would have been out on that sun-baked prairie years ago.

Pole-setting in my "grunt" days was never keenly enjoyed, although not detested as was hole-digging. I progressed to where I could juggle a 16-foot pike pole. Then, when the pole was lined up and the pikes grounded, I grabbed a tamp and was always able to keep it on top of the dirt.

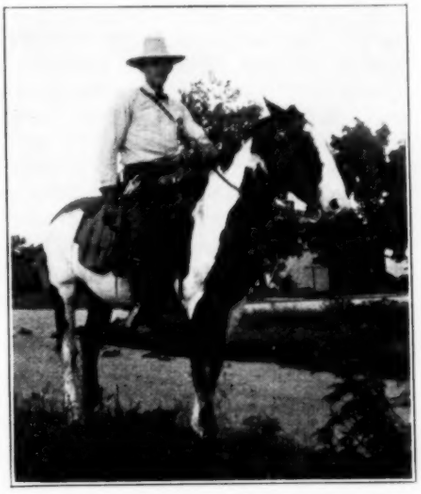
The boss claimed that if we tamped properly we would not have enough dirt which came out of the hole to fill in around the pole. This was probably true, but when he was not on the job we generally had plenty left over. While never a glutton for work, I was not lazy enough to use the shovel for backfilling. I did buck the reel for a time, and of all the man-killing jobs I ever had, that was it. Later we pulled wire back and did not attempt to carry reels where we could not travel with the reel wagon.

The old-time "grunt," as I knew him, does not exist in the general scheme today, for he has been supplanted by modern machinery, which, perhaps, is of benefit to all. Nevertheless, I cannot help but feel that the telephone world has lost something by his passing.

Manager Does Trouble-Shooting with Horse-Drawn Vehicles.

In Morristown, Minn., Henry Seidel, secretary and manager of the Morristown Telephone Co., finds that a horse can be driven cheaper than a car. The accompanying illustrations show "Hank" on trouble-shooting with his "live" motive-power equipment. In addition, he has a regular repair wagon equipped with rubber tires. He travels with the horse most of the year.

Mr. Seidel has done a lot of exchanging telephone rentals for farm products, such as corn, some of which was burned in the furnace last winter as fuel. He has taken in wood, and even accepted pigs which were traded for labor. One of the illustrations shows Mr. Seidel coming in with a load of corn which cancelled six months' telephone rent.



When in a Hurry on a Light Trouble Case, "Hank" Travels Horseback With a Test Set Under His Arm.

Careless Habits Can Knock You for a Costly Roll!

By Jake, The Lineman.

Mornin', buddies! As usual durin' the week, I have gone over a whole bunch of accidents, and studied each one in an endeavor to discover if there were anything behind them besides just plain carelessness. I can truthfully say that in each accident which I studied this week, the cause can be laid to carelessness.

It's a shame that human beings, living in a world as wonderful as ours, should allow "carelessness" to cripple, blind and even kill them.

Trouble-Shooting Rig Which Is Used by Manager Henry Seidel of the Morristown Telephone Co., Morristown, Minn.—Manager Seidel Returning to Town With a Load of Corn Which Cancelled Six Months' Telephone Rent.

But facts are facts—carelessness is killing and injuring a lot of humans each year. And why? There's no cause for carelessness. Carefulness and safety are preached to every one; and anyone with an ounce of brains between his ears should be able to see that careless habits only mean trouble.

But what say we just review a few accidents and see for ourselves how careless habits are knocking some people for rows of speckled tombstones:

A mechanic is lying in a hospital bed suffering from bad burns on his arms, legs and on his face. One little careless act caused all of his suffering. From the report, the mechanic was polishing a car with an electric polishing tool. His supervisor noticed that the pad on the tool needed cleaning and called the mechanic's attention to it. The mechanic got a quart of gasoline and, without removing the pad from the machine, stuck the entire tool into the gasoline. After he had got the pad clean he started the polisher and it burst into flames.

Well, buddies, I've heard of dumb ones but that one is among the worst. If the mechanic had been a careful worker, he would have removed the pad from the machine, washed it, dried it and then replaced it. But he didn't—and that's exactly why he's suffering so much now.

Another young fellow put his ladder up against the wall of a building. The base of the ladder rested in some grease, but he thought nothing of it and went up the ladder. The ladder slid out at the base, the workman fell and landed so hard he fractured his left knee. The use of safety could have easily prevented this accident.

A splicer's helper started to skim dirt off hot solder, but he forgot to heat the ladle. The solder started popping and, before it was all over, hot solder had dropped onto his foot, causing second degree burns.

In spite of repeated instructions to remove his climbers while working on the ground, a repairman tried to climb over a fence while wearing his climbers. As a result, he spurred his left foot, and another accident was charged up to carelessness.

Well, I guess that's enough to prove that careless habits are the cause of most accidents. But I could go on for hours, giving you the dope of hundreds of unnecessary accidents, and after we had finished we would know that carelessness causes most accidents. However, as most of us know that now, let's let the accidents ride and take up a few signals:

Be a careful worker and you'll live a long, happy life. An accident can knock your plans, hopes and ambitions for a roll from which they may never recover.

Every time you lay tools or materials on a crossarm you are taking a chance for they may fall off and hit either a passerby or a fellow worker.

Careful habits can help you do a safer job. Make it one of your habits to always make sure that any equipment on a pole is securely fastened before you put your weight on it.

Always inspect guys for electrical contact before touching them. Remember it doesn't take much electricity to put a harp in your hand. Enuf sed!

Remember this pointer the next time you're out trimming trees: Be careful about placing your weight on limbs. They may be rotted.

Every time you stand on top of a stepladder or higher than the third rung from the top of a straight ladder, you're taking an unnecessary chance.

Frequently we see workers trying to throw or catch materials while they are standing on a ladder. Notice, I said "trying," for such foolish attempts usually end up with an accident.

Unless you want your friends to go aroun' sayin' softly, "Mr. Smith was such a good man," forget all your careless habits and do your best to become a careful worker.

Ladders should never be lashed together as substitutes for extension ladders. One ladder is dangerous enough but two ladders lashed together are more than dangerous.

Thar they be, buddies, an' now I'll amble along. Until Saturday, remember: "Careless people are like lepers—nobody wants them around."

Flashes and Plugs—News Briefs and Comments

News from Kansas City reports that several of 650 workers of a large mail order house who received pay increases under the NRA agreement, stated that they used the extra money to have telephone service re-installed in their homes.

* * *

The Chicago Daily News on August 30 said: "It is reported that disconnections of Bell System telephones for July were very small. Officials are said to feel that by September or October the number of connections will exceed removals."

* * *

Federal taxes on telephone, telegraph and radio messages in July amounted to $1,685,306, a gain of more than a half-million over June.

That indicated greater business activity.

* * *

In Cleveland, Ohio, six men were trapped in a tunnel 40 feet below the street by a fire in the only shaft connecting them with the surface. Instructions by telephone via a circuit between the top of the shaft and the tunnel, saved their lives.

* * *

While confined to his home in New York by illness, Secretary of the Treasury W. H. Woodin runs his department by telephone.

* * *

It is estimated that NRA will cost the public service companies of Chicago between $50,000,000 and $75,000,000 extra per year.

* * *

The Irish Free State has reported that the telephone system yielded a profit of approximately £40,000 in 1931, while the telegraph department showed a loss of £89,000.

* * *

Chas. A. Rolfe, of Redlands, Calif., the "Grand Old Man of Independent Telephony," says that Independent history goes back to 1880 when Albany, N. Y., had competing exchanges known as Bell and Edison. In 1884, Mr. Rolfe built an exchange at Utica, N. Y., which competed with the Bell.

Most people believed the Independent movement started about 1892. Mr. Rolfe says there were three Independent starts—in 1880, 1884 and 1893.

* * *

Stockholders in electric light and power companies are writing the Illinois Commerce Commission protesting against the reduction in service rates recently ordered. They object to a loss in dividends.

* * *

Everything is comparative. In France the Committee for Improvement of the Telephone Service has issued a complaint that there are excessive delays in furnishing service to new subscribers. In answer to this, the Administration admitted that it was 2,000 installations behind in Paris alone, but claimed that the waiting time between the filing of an application and the completion of an installation had been reduced to a maximum of six weeks.

* * *

Records of a country-wide safe driving contest show that the Ohio Bell Telephone Co. operated 42 vehicles 37,164 miles with only one accident.

* * *

Franklin D. Roosevelt, Jr., traveling in Spain, put through a telephone call to the President at the summer White House at Hyde Park, N. Y.

* * *

The five leading telephone users in the world are: United States, with 15.8 telephones per 100 inhabitants; Canada, with 13.1; Denmark, with 9.1; New Zealand, with 9.9 and Sweden, with 9.1.

Larger Switchboard Now in Service at National Capitol.

President Roosevelt received the first call through the new private branch telephone switchboard recently opened at the Capitol to handle calls of Senators and Representatives. The call came from South Trimble, clerk of the House.

The new switchboard is installed in the House office building annex, replacing a smaller switchboard which had been outgrown. It is under the direction of Mrs. Harriet G. Daley who has a force of 31 operators, serving 2,000 telephones.

Suspension Stresses in Aerial Leads

Erecting Tension and Sag in Cable Messenger Strand for Non-Level Supports, Class II Spans Where the Low Point Occurs Between Supports—Outline of Computations and Practical Examples Showing Application of the Method

By E. R. Keyes,
Communications Engineer, Pasadena, Calif.

The solution of the sag-tension values for the side-hill span is not as simple as that for the level support case.

Possibly the best method is to make sufficient computations for reducing the non-level spans to equivalent level spans. Then use the sag-tension logarithmic chart published in TELEPHONY of February 11, 1933. Even then the preliminary calculations may be a little irksome to those not inclined toward algebraic substitutions.

The side-hill span, however, is by far the most troublesome and dangerous if not properly designed. This type of span can be quite deceptive and lead to disconcerting results on snap judgment. Among other things, one should never permit an abrupt change in grade from one span to the next.

A cable system having the same span lengths (horizontal distance) on the level and side hill, will not have the same erecting tension if it is desired to have the same safe tension on the strand for storm loads. In fact, at no other time are the tensions the same!

If the hill spans are erected at the same tension as the level, then when the cable is drawn in, the tensions immediately change value and will spread farther and farther apart under severe weather conditions.

The result will be that the hill spans, having greater tension, will draw slack from the level. This will bend poles, move strand through clamps, and place undesirable stresses on the whole lead as well as the sheath of the cable, which, of course, should not be stressed. When the weather warms up, the whole plant will again move, in the opposite direction.

Needless to say, this is highly undesirable, and the best way to avoid it is to dead-end the strand at the bottom of the hill. Then pull the level and hill sections separately with due regard to the proper erecting tensions for each case.

Each side-hill span of different grade would theoretically demand a different erecting tension for the same safe storm stress. This would require dead-ending at nearly every span, a procedure utterly impossible from a practical standpoint. Hence the best plan is to pick the most dangerous span and set the erecting tension for that condition. This will give assurance of safety on the other spans when storm conditions arise.

A study of equation (13) and reference to the logarithmic chart No. 9232 (TELEPHONY, February 11, 1933) will convince one that for equal span lengths (horizontal distances), the most dangerous span is the one on the steepest grade.

In Fig. 1, the span under consideration reaches from A to B. By projecting out along the dotted line from A to C, we reach a level with B. The distance, CB, is the equivalent level span length.

Every side-hill span acts as though it were part of a level span as illustrated in Fig. 1. For this reason, one may use the level span length in making many computations for information on the non-level span. This is of great assistance because we are already familiar with the characteristics of the level span.

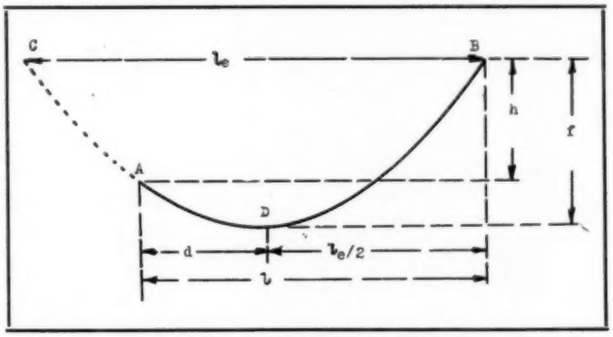


Fig. 1. The Side-Hill Span.

Due to the fact that the point D may, in some problems, fall to the left of A, a little different method is used than for this case pictured here. The case illustrated here is called Class II, and the other referred to is Class III. Operation B in the following shows how one may determine into which class the span belongs.

The computations incident to the determination of information on Class II spans have been grouped in a form that may tend to simplify calculations:

OUTLINE OF COMPUTATIONS FOR ERECTING AND OTHER DESIGN INFORMATION ON CLASS II SPANS:

Symbols:

l = horizontal distances between side hill supports.
h = difference in elevation of supports.
T = desired storm stress.
w = weight per foot for cable, strand, and wind.
w'' = weight per foot of strand alone.
l_e = length of equivalent span.
l' = straight-line distance between supports $= \sqrt{h^2+l^2}$.
H'' = erecting tension for strand alone.
d = horizontal distance between low point of span and low support.

A: Solve for the equivalent span length.

$$l_e = l + 2Th/wl \ldots (13)$$

B: Solve equation (14) to determine whether Class II or III applies.

$$l - l_e/2 = + - d \ldots (14);$$

if d has a positive value, one uses Class II; otherwise Class III.

C: Solve for the erecting tension and sag at 80° F.

Using l_e and w'' values, refer to the logarithmic chart curves U300 and U150, depending on the size of cable involved. The procedure is illustrated by instruction lines in the lower right corner of the chart. The sag given is the vertical distance from the high support to the low point D of the span. The sag below the lower support would be the chart reading minus the difference of elevation for the two supports.

OUTLINE OF GENERAL SOLUTIONS FOR INFORMATION ON CABLE ALREADY IN PLACE:

D: Use of chart for power, telephone and other types of spans already in place.

Using l_e and w', the actual weight per foot, refer to the logarithmic chart. The method is illustrated in the upper right corner of the sheet. It is evident under Class II (see Fig. 1) that the value for l_e is twice the horizontal distance from D to the high support.

SAMPLE OF COMPUTATIONS FOR ERECTING INFORMATION ON CLASS II SPANS:

Example: A 300-pair No. 22 gauge cable is to be erected on a side hill using messenger of 7/16-inch high-strength strand. The horizontal distances between supports is 150 feet, and their difference in elevation is 4 feet. Find the erecting stress such that when the cable is drawn in later and the temperature goes to — 20° F. with a 50 m.p.h. wind, the safe tension on the strand will be 5,000 pounds.

A: Solve for the equivalent level span length:

$l_e = l + 2Th/wl$, where $h = 4$ feet, $l = 150$ feet, $w = 6$ pounds.

$l_e = 150 + (2 \times 5000 \times 4) \div (6 \times 150)$
$= 194.4$ feet length of equivalent span

B: Determine class of span:

$$l - l_e/2 = + - d \ldots (14)$$

$150 - 194.4/2 = + 52.8$. Hence, this falls in Class II, since d is positive.

C: Solve for erecting tension and sag at 80° F.:

Refer to the logarithmic chart, TELEPHONY, February 11, 1933. Start at 194.4 feet span on the bottom scale and travel vertically to the intersection with the weight line of 0.41 pound per foot on left scale. From this point travel parallel to the diagonal lines until striking curve U300. From there go to the right, reading the tension of 470 pounds to be used in erecting the strand. Or instead, go vertically to the top scale reading the sag of 4.2 feet. The sag below the lower support will be 4.2 ft. —4.0 ft. = .2 ft. = 2.4 ins.

SAMPLE OF METHOD FOR GENERAL SOLUTIONS WHERE THE CABLE OR OTHER MATERIAL IS ALREADY IN PLACE.

Example: On a side-hill span the lowest part of the cable is 75 feet horizontally, from the high support. A 7/16-inch strand carries a 150-pair No. 22 gauge cable, and the low point of the cable is 5 feet below the high support. Weight of cable and messenger is 3.3 lbs. per ft. What is the tension in the strand?

$l_e = 2 \times 75$ ft. = 150 ft. equivalent span length.

$f' = 5$ ft. sag below high support.

Referring to the logarithmic chart No. 9232, enter at the bottom scale for 150 feet span and travel vertically to the intersection with the weight line for 3.3 lbs. per ft. (left scale). Go parallel to the diagonal lines until striking the vertical line through 5 feet sag (top scale) and read 1,850 pounds tension on right scale. This is the tension existing in the span under consideration.

SOME OF THE MYTHS OF TELEPHONE HISTORY.

(*Concluded from page* 14.)

preceded Bell in the invention was adjudicated and decided in Bell's favor.

But the closeness of the times of filing became exaggerated in the minds of some people into real importance; and this was further exaggerated by the intense feeling of the ensuing litigation. Even Elisha Gray, as time passed, fell into this error himself. But not at first. Both Bell and Gray exhibited inventions at the Centennial Exhibition at Philadelphia that summer of 1876. On Sunday afternoon, June 25, Bell demonstrated his telephone before the judges of electrical instruments and instruments of precision. Elisha Gray himself was present. Among the judges were Sir William Thomson, later Lord Kelvin, and Prof. James C. Watson of the University of Michigan.

In the scientific periodical, Nature, for December 5, 1878, Professor Watson told about certain experiments that he and Sir William made with Bell's telephone after Bell had returned to Boston, and about Elisha Gray's comments on them:

The news of their successful experiments soon circulated freely, and the day following, or possibly two days afterwards, Mr. Gray came to me and inquired whether the reports of our success with Bell's telephone were correct; and upon receiving from me an affirmative reply, he said that it was impossible, that we had been deceived in some way, that the transmission was by actual metallic contact through the wire, and that it was, to use his own words, "nothing more than the old lover's telegraph."

In reply, I said to him that we had taken every possible precaution against error, that we were both convinced of the reality of Bell's claims, and that Sir William Thomson would report to that effect. He persisted in his statement that the result was impossible, and that we must have been deceived in some way or other.

If Professor Gray was so sure that Bell's invention could be nothing more than another acoustic telephone, like Meucci's, and that an electric telephone was impossible, he could not have regarded his own caveat as asserting more than a chance that he might solve the problem, much less that he had already invented it himself.

However, Professor Watson's statement is not the only evidence of this. Some friction arose between Bell and Gray on account of certain statements that Professor Gray made in a lecture in Chicago, and that seem to have been incorrectly reported in the press.

In a letter that Elisha Gray wrote with his own hand to Alexander Graham Bell on March 5, 1877, he said of his lecture: "I gave you full credit for the talking feature of the telephone. . . . I described your apparatus at length by diagram." And again farther on in the same letter: "I do not, however, claim even the credit of inventing it, as I do not believe a mere description of an idea that has never been *reduced* to *practice*—in the *strict sense* of that phrase—should be dignified with the name invention" (italics Gray's).

How could it be, then, in view of these plain statements of his own, that Gray ever actually and (paradoxical though it be) sincerely believed that he antedated Bell in the invention of the telephone? He was not deceived, as Meucci was, by anyone. He was competent to reach the truth of the matter from his own knowledge of electricity. It came about through an unaccountable habit of human nature.

The strange fact was described in a sentence by Judge Sprague in Howe vs. Underwood: "After having seen what has been done, the mind is very apt to blend the subsequent information with prior recollections and confuse them together."

Beside this tendency common to most people, Gray was considerably older than Bell. He was of very serious nature; there was no lightness in his nature that would enable him to throw off disappointment and take defeat easily. It hurt his pride that the young teacher should have invented what he had started to work on and which he had regarded as impossible.

Then the floods of legal contention swept deliberation and calm judgment away in the swirling currents of the litigation. That he invented the telephone became *une idée fixe*. He brooded over the disappointments of the struggle and became an embittered man. When he died, there was found among his effects, a scrap of paper in his own writing on which was written:

The history of the telephone will never be fully written; it is partly hidden away in 20 or 30 thousand pages of testimony and partly lying on the hearts and consciences of a few whose lips are sealed—some in death, and others by a golden clasp whose grip is even tighter.

From this it will be seen how cruelly sincere he was in the belief that it was he who invented the telephone. It is sad, tragic. And it is regretted especially in the Bell System, for Elisha Gray was one of the founders of the Western Electric Co. and is honored, now that the bias of those days has passed away, for his own great merits.

His empty claim has become a myth. His adherents in the days of the telephone litigation, and his friends, perpetuated his claim and rallied devotedly to him under the banner of the lost cause. But time is healing the wounds, and allaying the bitterness of former days.

The Elisha Gray collection in the Historical Library of the American Telephone & Telegraph Co. preserves many of his papers and impartially welcomes any material pertaining to his claim. The facts are now recognized without prejudice on the one side, and he is no longer accused of flagrant insincerity on the other. The Elisha Gray myth has now pretty much passed into the Valhalla of history along with the other myths, where they enjoy due recognition for their worth unhampered by any too literal allegiance to the more prosaic facts.

But one myth seems still to cling to earth—the myth of Joshua Coppersmith. May he, too, soon go to "the bourne from whence no traveler returns"! Even there, however, he may have bad luck and be relegated to the stables to groom the horses, the winged steeds on which others ride gleaming through the sunlit heavens.

Company Reports 76,169 Telephones in Portland, Ore.

The Pacific Telephone & Telegraph Co. had 76,169 telephones in operation in Portland, Ore., at the close of the quarter year ending June 30, according to a report filed with the city auditor for presentation to the city council.

This report shows that the company has 33,655 poles and 373,462 miles of wire in the city. The telephones in operation are reported thus: One-party business, 4,927; two-party business, 800; suburban business, 62; business extensions, 4,579; one-party residence, 4,701; two-party residence, 19,924; four-party, suburban residence, 886; private branch exchanges, 15,547; residence extensions, 2,950; nickel-in-slot, 5,325, and service stations, 25.

What the Commissions Are Doing

News Regarding the Activities of Various Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of the Orders and Schedule of Hearings

Small Georgia Companies Excused from Appearing at Hearing.

The Georgia Public Service Commission recently issued an announcement stating that a number of small telephone companies, operating in Georgia, will be excused from appearing before the commission on September 12 to show cause why their rates should not be reduced.

Analyses of some of the small telephone exchanges showed there was no reason for them to appear at the hearing, said Curtis A. Mees, consulting engineer and chief of the advisory staff of the commission. He stated that the commission would advise those companies to be excused from appearing at the hearing.

Lousiana Rate Cases Against Southern Bell T. & T. Ended.

The Louisiana Public Service Commission has completed investigations of various complaints filed against the Southern Bell Telephone & Telegraph Co. and under date of July 25 issued a consolidation order in the cases. The complaints were filed by residents of the Cedar Area exchange of New Orleans (No. 1711); of Shreveport (No. 1894); of Logansport (No. 1928); and of Caddo Parish (No. 1965), relative to telephone rates and practices and installation and removal charges of the Southern Bell company.

The commission also instituted an investigation (No. 1921), on its own motion, into the rates, charges and practices of the Southern Bell company within the state of Louisiana.

The foregoing complaints were filed with the commission over a period from August 19, 1931, to October 21, 1932. Early this year the commission issued preliminary orders requiring the Southern Bell company to produce and file certain pertinent information regarding its investments, revenues, expenses, and other data on which to further base the commission's investigations.

At an executive session of the commission on April 10, Chairman Harvey G. Fields was authorized and empowered to handle any detailed phases of these cases. Accordingly, Chairman Fields entered into an investigation of the complaints, based on the limited revenues and facilities at his command, delving primarily into the question of special and extraordinary charges. The revenues of the commission at that time, it is stated, would not permit of a general statewide investigation of the basis rates and charges of the company.

After due investigation, Mr. Fields filed his report and recommendations in open hearing at Baton Rouge on June 26, supplemented by a further report filed in open session at Monroe on June 30. His report and recommendations were adopted and made the basis of the commission's order to the effect that:

Effective with the August billing period of the Southern Bell company in its Cedar area exchange of New Orleans, the maximum monthly rates or charges are: Individual line business telephones, $11.00; residence individual line service, $4.50; residence two-party line service, $3.50; and residence four-party line service, $2.75.

The maximum guarantee for semi-public telephone service, which the company may require of its subscribers in the Cedar area, is 23½ cents per day; local messages not to exceed five cents for each five minutes or fraction thereof. The order provided that "a commission shall be allowed by the company to its subscribers of not less than 1½ cents per message on local messages in excess of the guarantee for the collection period."

Effective August 1, the public telephone agents of the company in the Cedar area shall be allowed a commission of not less than 1½ cents per message on local messages on all receipts in excess of $7.00 per month.

The Southern Bell company was ordered to introduce and establish in its New Orleans proper exchange area a four-party line residence exchange service at the maximum monthly rate of $2.75 within the base rate area; and for four-party service outside the base rate area and within the service area of the exchange, mileage charges of 20 cents per month per half-mile or fraction thereof, route measurement.

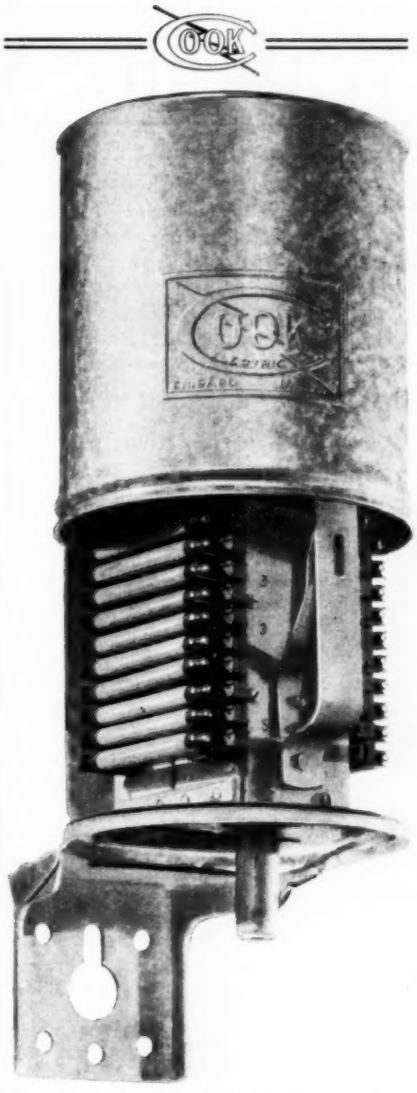
The maximum guarantee for semi-public telephone service, which the company may require of its subscribers of the New Orleans proper exchange area, is 17½ cents per day, the commission specified. Local messages should not exceed five cents for each five minutes, with a commission to be allowed subscribers of not less than 1½ cents per message on local messages in excess of the guarantee for the collection period.

The public agents of the company in New Orleans were allowed a commission of not less than 1½ cents per message on local messages on all receipts in excess of $5.25 per month.

The additional charge for handset telephones was ordered reduced from 50 cents to 25 cents per month, effective August 1. The reduction applied to all handsets furnished by the Southern Bell company in the state of Louisiana.

Charges for installation or replacement of telephone cords were ordered reduced

(*Please turn to page* 31.)



Cook S-6 Protected Pole Cable Terminal

For the past twenty-five years this S-6 terminal has been extensively used in all parts of the world with excellent results. The materials used in its construction have withstood the rigors of the arctic, the humid tropics and the fog-covered coast lines of North America and Northern Europe.

COOK ELECTRIC CO.
MANUFACTURERS
2700 Southport Ave.
CHICAGO ILLINOIS

With the Manufacturers and Jobbers

Directors of General Cable Corp. Elect New President.

At a meeting of the board of directors of the General Cable Corp., held Wednesday, August 2, Dwight R. G. Palmer was elected president of the corporation, succeeding H. T. Dyett, whose resignation was accepted with great regret. Dr. Frank M. Potter was elected vice-president at the same meeting.

"Klein-Kord," the New Material for Linemen's Safety Straps.

After many years of experimenting with numerous types of woven material for lineman's safety straps, Mathias Klein & Sons have developed a special material which, it is stated, has a greater tensile strength than leather and at the same time permits the use of the conventional tongue type of buckle without danger of slitting the strap under any load to which it would be put in use.

This new material has been named "Klein-Kord." It is made of four plys of heavy, closely-woven, long fibre cotton fabric. Each ply is laid in live rubber which is vulcanized to the fabric by a process similar to that used in making automobile tires.

In regular transmission belting, the longitudinal fibers carry the load. The cross fibres are much lighter and for this reason, when used as linemen's safety straps it is necessary to assemble with a friction type buckle to avoid slitting at the tongue of the regular buckle, which invariably takes place at a comparatively light load. The tendency of a friction buckle to slip made its use undesirable.

In Klein-Kord, transverse cords are designed to resist the rip at the buckle tongue. Under actual test, it is stated, an average load of 2,400 pounds on a single tongue buckle is developed before ripping takes place at the tongue. The tensile strength of Klein-Kord per square inch is stated to be 5,660 pounds. With Klein-Kord there is said to be no appreciable stretch, and a width of 1¾ inches, it is stated, provides a full factor of safety.

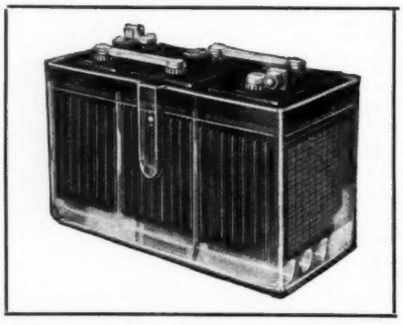
A small pamphlet has recently been issued giving full detailed information concerning Klein-Kord. Copies of it may be obtained upon application to Mathias Klein & Sons, 3200 Belmont avenue, Chicago.

Exide Storage Battery for Late Type Automatic Equipment.

Of the many kinds of Exide storage battery cells manufactured by the Electric Storage Battery Co., certain types have been especially designed to meet conditions of the telephone application where a reliable source of direct current and steady voltage is required, either constant or intermittently, or to tide over occasional interruptions in the normal supply.

Keeping abreast with the new developments in telephone switchboards of the full automatic (CAX) and the remote controlled (RCX) type as manufactured by the Automatic Electric Co., the Electric Storage Battery Co. has designed the Exide VMGL battery, sealed cells in three compartment glass containers, to meet the requirements as to space and capacity.

The elements of the batteries are made with plates of the Exide pasted type, with rugged grids, assembled with both wood and rubber separators, the latter enhancing the life of the battery. Each switchboard



The New Exide Battery; Sealed Cells in Three-Compartment Glass Containers.

battery equipment consists of eight units, and each unit has pilot balls in one cell to give a rough indication of the state of charge.

These batteries are available in two sizes, known as the VMGL-7 and VMGL-13, 50 and 100-ampere-hour capacities, respectively.

The Older Employe in Industry Discussed in Report.

The problem of what to do about the employe who has grown old in a manufacturing organization, and whose ability to do his usual work has lessened with the passing years, is one which many an industry is finding serious. Just what business executives are doing to solve this problem is told in a new report by the policyholders' service bureau of the Metropolitan Life Insurance Co., entitled "The Older Employe in Industry," which presents the findings of a broad survey of the subject.

Five thousand manufacturing companies were asked whether they have definite plans for dealing with the problem of the older employe. Of those replying, 800, which employ more than a million workers, stated that they have such programs in operation. These organizations told in some detail what they are doing. Details of these plans were tabulated, analyzed, and prepared for presentation.

According to this report, discovery of problem cases is the first detail to be considered. Usually, mere observation by foremen or supervisors is sufficient. Some companies, however, have plans for a systematic review of the records of employes when they attain a specified age. These plans are detailed in the report.

The next step, according to the report, requires decision as to what procedure is to be followed. Some companies, it was found, make it a practice to continue these employes at the same job, generally with adjustment in hours, wages, or duties. Sometimes special mechanical aid on the job is provided. Other companies make it a practice to transfer the older worker to another job.

The factors which affect the selection of these new posts are discussed in this report; typical transfers are cited and described. Some organizations, the report states, provide special medical and safety supervision for older employes. These are set forth in some detail.

In the interest of ready reference and quick summarization, two charts are reproduced in the report. These are: "The Older Employe, Chart of Alternative Procedures" and "Detailed Chart of Possible Procedure (Older Employe Continued on the Payroll)."

A limited number of copies of "The Older Employe in Industry" is available. As long as this stock permits, readers desiring copies will be supplied by the policyholders' service bureau, Metropolitan Life Insurance Co., 1 Madison avenue, New York, N. Y.

Program Service System Purchased for High School.

The board of education at Pendleton, Ind., has purchased a Stromberg-Carlson No. 3 program service system, consisting of a control panel, a high quality radio receiver, a phonograph, a microphone, and 12 loudspeakers, for installation in the Pendelton high school. R. E. Brookbank, manager of the Pendleton Telephone Co., will install the equipment.

The increasing use of program service in schools will interest telephone men, because they are so closely connected with municipal affairs that anything pertaining to them has its effect on the telephone industry. It is believed to be only a question of time until nearly every school in the country will have program service—and the advice and assistance of the local telephone company is usually sought in such installations.

Five separate frequencies are used, thus permitting the selective ringing of any one of five bells, if they are bridged directly across the line. By connecting two groups of five ringers from each side of the line to ground, full selective service can be given on a ten-party basis.

The frequencies ordinarily employed are 20, 33, 42, 50 and 66 cycles. Fig. 4 illustrates how ten-party full selective service can be given on a rural line equipped with tuned reed ringers. On magneto lines of this type, the subscribers'

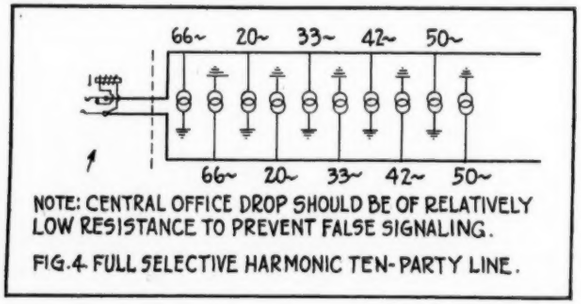


FIG.4 FULL SELECTIVE HARMONIC TEN-PARTY LINE.

sets can be equipped with ordinary alternating current generators; and by using a relatively low impedance drop at the central office, the operator can be signaled by the subscriber without ringing any of the harmonic ringers.

This method of giving selective signaling service is subject to the same disadvantage as the semi-selective system using unbiased ringers, viz., it is apt to result in excessive inductive interference if long parallels with power lines are involved.

Semi-selective signaling service can be given in such cases by bridging all ten ringers across the line, but this may cause trouble due to weak rings on long lines because of the greater voltage drop in the line and in the ringing machine at the central office.

Subscribers' Preference.

In considering the changing of the type of service given on a multi-party rural line, some thought should be given as to the subscribers' preference in the matter.

It would seem that the subscriber on a multi-party line would welcome any arrangement that would keep his telephone from ringing except when he was being signaled. Unfortunately this is not the case, and many seem to prefer the simple bridging circuit whereby he or she (usually she) can tune in on their neighbors' conversation.

Before installing a new system of signaling, the wise manager will find out if the subscribers involved will approve of it, for after all it is the subscribers who must be satisfied and not the telephone company.

Electrical Filters.

A unit of apparatus which is finding increasing application in modern telephone systems, is the electrical filter. An electrical filter is an arrangement of inductances and capacities so associated as to have the ability to select or reject some predetermined range of frequencies. Filters depend on the phenomena of resonance between an inductance and capacity, in the same way as do the tuning circuits in a radio set.

An excellent demonstration of the importance of the electrical filter in telephone and telegraph circuits is shown in one of the Bell System exhibits at the Century of Progress. In this exhibit, a multi-channel, voice-frequency telegraph

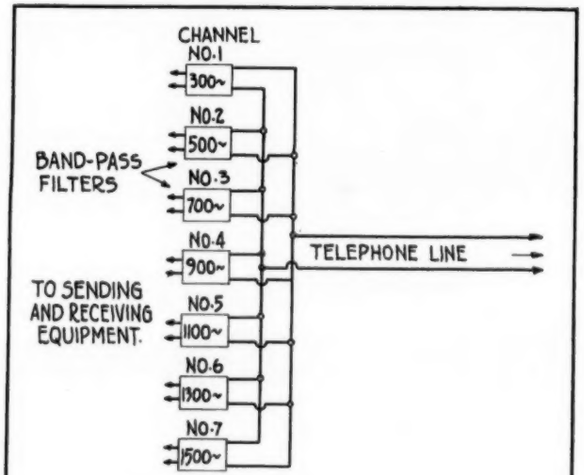


FIG.1. SCHEMATIC OF VOICE-FREQUENCY TELEGRAPH SYSTEM.

system operating on a single pair of wires is so arranged that the sound made by all of the separate telegraph channels can be heard as they would sound to anyone listening directly across the circuit.

By means of a selective switch, electrical filters associated with each channel are cut into the circuit and the listener hears only a single frequency; that being the one selected by the electrical filter he has inserted in the circuit. Thus does the electrical filter enable a dozen telegraph channels to be obtained from a single pair of telephone wires. Fig. 1 illustrates this application of the electrical filter.

Filters are used: in battery-charging circuits to reduce

alternating current hum; in carrier telephone circuits to separate the various carrier and voice-frequency channels; in ringing machines to reduce radio frequency disturbances in neighboring radio sets, and in other similar applications.

The increasing importance of the filter warrants a discussion of its basic theory. The theory of filter design is quite complex but an effort has been made in this data sheet to simplify the discussion ordinarily given so that it can be easily understood.

Classes of Filters.

Filters are classified according to their transmission characteristics. There are four groups: (1) the low-pass filter which transmits frequencies from zero up to some predetermined frequency, say, f_1, with little or no attenuation, and which attenuates greatly frequencies above f_1; (2) the high-pass filter which attenuates greatly frequencies up to, say, f_2 and which offers little or no attenuation for frequencies above this value; (3) the band-pass filter which attenuates

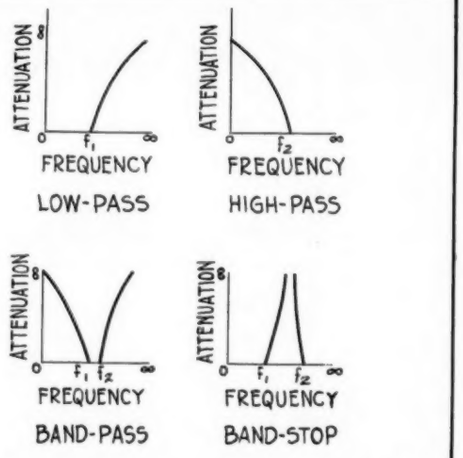


FIG.2 FOUR CLASSES OF ELECTRIC FILTERS

greatly all frequencies outside of a given range, say, between f_1 and f_2, and offers little attenuation to frequencies within this range; (4) the band-stop filter which attenuates frequencies within a given range and passes with little or no attenuation frequencies outside of this range. Fig. 2 illustrates the characteristics of each class of filter.

It is obvious that the band-pass and the band-stop filters may be made by connecting suitable low-pass and high-pass filters either in series or in parallel.

Cozad, Neb., Installs New Equipment

Article Describing Briefly Conditions in Exchange of Cozad Mutual Telephone Co., Cozad, Neb., Problems Encountered, and Methods Used in Solving and Overcoming Them—Features of Switchboard Equipment Now in Service

By R. L. Thomas,
Representative, Kellogg Switchboard & Supply Co.

The Cozad Mutual Telephone Co., Cozad, Neb., had conducted its affairs for some 32 years with a constantly-increasing subscriber list. During this time, the town of Cozad had grown in population, and this, quite logically, had its effect on the company's subscriber list. Magneto equipment, however, still served this town, but despite population increase, the saturation point of telephones seemed to be reached.

To the executives of the telephone company this was a sign which simply meant that Cozad had outgrown magneto service. Here was a community of progressive folks, confronted with an inadequate and unsatisfactory type of telephone service. Naturally, this had its effect on the use of the telephone. In the first place, magneto equipment was slow and uninviting.

The equipment would not permit the operators to be fast in answering, and fast in completing calls. Then, too, the quality of transmission continued to vary because of the periodic weakening of batteries. The board was old, and many complaints were due to worn plugs and jacks. Cords were sometimes noisy too, and contacts were far from perfect. Sometimes telephones went dead because repairs on the switchboard were necessary. Such repairs involved considerable expense.

The directors of the company realized that their costs were too high. They believed that modern, common battery service would attract many new subscribers. Consequently, plans were made to purchase new common battery equipment to assure subscribers good, fast and satisfactory service, and at the same time assure the company a fair return on its investment.

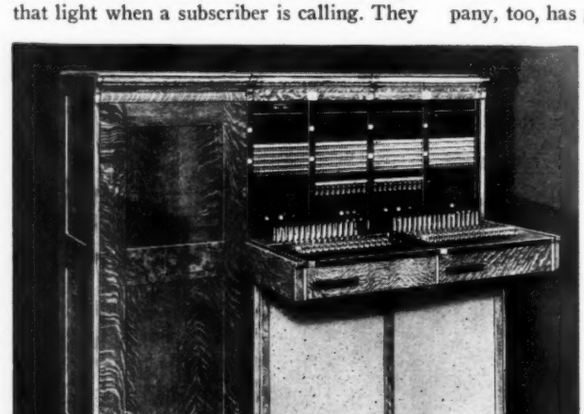
A Kellogg 6-800 Masterbuilt switchboard was decided upon. Its flexibility would make it a simple matter to take care of any traffic changes or rapid growths in the future with moderate expense. Its many operating features gave the company assurance of fast, satisfactory common battery service with a small amount of care and expense.

Because the company was eager to give its subscribers the advantage of common battery service as quickly as possible, the board was purchased and installed soon after a decision had been reached. In a short time it was in full operation, and the old magneto lines were rapidly cut over to common battery.

The Masterbuilt board now in the Cozad exchange is wired and equipped with 300 universal local lines, 200 common battery local lines, 50 rural lines, and 10 toll lines. The 300 universal local lines permit the changing of one line at a time from magneto to common battery service.

Since they are operated on major type relays, the universal lines work equally well with either class of service. Only a slight wiring change at the switchboard is necessary for the conversion.

On the new switchboard the operator is certain to see at least one of the two lamps that light when a subscriber is calling. They cannot be hidden behind cords that are plugged in, as fallen drop shutters sometimes are. Lamps can be more quickly seen and more easily located, so that service is speeded up.



Kellogg 6-800 Masterbuilt Switchboard Similar to the One Recently Installed at Cozad, Neb.

Dark keyshelf is another feature. This is accomplished by causing the supervisory lamp to be extinguished when the operator presses the ringing key. This acts as a guard, for as long as it remains lighted the operator knows that she has not completed her duties on that connection; and when it is extinguished she knows her work is completed until the lamp lights again, indicating that the party is through talking and has "hung up."

The keyshelf remains dark while the parties are talking. When they hang up each party lights the supervisory lamp of the cord connected to his line. Both lamps go out when the plugs are removed from the jacks. This operation is a positive indication of the state of the call at all times and cannot be misunderstood. It is economical in the use of current.

The new switchboard equipment is adequate to take care of the company's present total of 276 resident telephones, 85 business telephones, and 520 farmer stations. The flexibility of Masterbuilt switchboards, which includes the Kellogg interchangeable positional equipment feature, assures the telephone company of having adequate facilities regardless of station growth.

Subscribers are greatly pleased with the new equipment and its performance. Calls are made quickly and easily and the transmission is steady and uniform. The company, too, has gained many advantages. Improved service has enabled it to hold old subscribers and obtain new ones. Maintenance costs have been considerably lowered.

Cozad has risen quickly from the prairie town founded in 1872. Located in Dawson county, Nebraska, in the fertile Platte Valley, it has many advantages that aided it in its growth. As early as 1899 the Zimmer interests, a foreign company endeavoring to gain a commercial foothold in the territory, installed the first telephones at Cozad. A few years later the present Cozad Mutual Telephone Co. was organized.

It was formed to continue the work of the Zimmer interests which had given up the venture as financially unfeasible. Under the new local management, business prospered. The new management exerted itself to the utmost to give subscribers the best service possible, and eventually success repaid it.

The cost of supplies and the wages paid then, compared with those of today, are quite interesting. The total of $35 paid complete expenses for one month. This included coal, lights, repair work, moving expense and all help. Directories were sold to all patrons for five cents each. Farmer lines at this time paid their switching dues by allowing the company to keep all toll revenue from calls originating on their lines from none-stockholders.

As Cozad grew larger, demands for better service and more facilities constantly became stronger. Lack of reserves or ready cash, however, slowed up expansion. Finally, the company levied special assessments on all stock to provide funds for its program of expansion. The service im-

provement enabled the company to increase its number of subscribers considerably so that in 1906 it operated 132 company telephones and 307 farmer stations. Rates at this time were $1.00 and $1.50 for residence and business telephones respectively, both payable six months in advance and "no free service to preachers."

From that time on to the date of the recent cut-over, the company expanded. The management was cautious and deliberate in all its dealing so that it gradually built up a solid, well-financed business foundation. From past accomplishments there is little doubt that the company will find even greater success.

The executives responsible for the company's progress, culminating in a common battery exchange, were also in charge of all transactions and the complete installation of the recently purchased equipment. The capable men guiding the destinies of Cozad Mutual Telephone Co. are: M. D. Young, general manager and secretary; E. N. Davis, president; L. H. Fotchman, vice-president; and T. J. Brownfield, treasurer.

WHAT THE COURTS AND COMMISSIONS ARE DOING.

(*Continued from page 27.*)

and maximum charges were specified. Rates for moving equipment on subscribers' premises on individual and party line service, business and residence, were likewise ordered reduced, based on the total number of company-owned stations connected with the particular exchange involved, four schedules being applicable.

"It is further ordered," said the commission, "that all rates, rules, regulations, charges and practices of the Southern Bell company in conflict herewith be and the same are hereby canceled in accordance with the rules of this commission."

In a dissenting and concurring opinion, Commissioner Francis Williams stated he concurred in the reduction granted the Cedar area exchange subscribers, as well as the reduction in installation charges, removal charges and others.

Discussing the handset order, Commissioner Williams approved the reduction but declared that "the decision and reduction does not go far enough."

"I believe," stated Commissioner Williams, "that evidence should have been secured as to the actual extra cost of such equipment and that the assessing of an extra charge for such equipment should be limited to the time required to pay for such extra cost at the rate of 25 cents per month."

Mr. Williams further declared that he did not agree with the commission's action in putting "the burden of all these reductions not on the telephone company but on the 5,000 pay station subscribers in New Orleans who will have money taken away from them illegally by this order rendered against them without notice and without hearing."

INSPIRATIONS OF RELIGION

The function of a modern religion is to accumulate spiritual power in life and for life. We need that power all the time; but if it has not been accumulated, it is not there when we need it most.

In a world like this, particularly like the one at the present time, can anyone get along just as well without the inspirations of religion? He cannot. Religion keeps us up to the everlasting effort to attain the best life and best things in life.—Rev. Dr. Minot Simons.

In conclusion, Commissioner Williams declared: "I vote for all the reductions ordered herein, suggest the limitation of the extra handset telephone charge to just exactly the time required to pay for such extra equipment; and I vote against any increase in the telephone company's share of the New Orleans pay stations' commissions, because such increase, as it has been allowed, is illegal, unjust and unsupported by any evidence in this record and rendered against over 5,000 telephone subscribers without notice and without hearing, as provided by law."

Nearby Company Exchanges to Serve Reading, Minn.

The application of the Fulda Telephone Co. for authority to close its exchange at Reading, Minn., on October 1 was granted by the Minnesota Railroad & Warehouse Commission on August 28. Telephone service is to be provided to the subscribers at Reading from the Wilmont and Rushmore exchanges of the company.

The commission held a hearing on the application on September 14, 1932. On September 21 the company asked the commission to continue the hearing at some future date, to allow the company to present additional evidence. This request was granted and a final hearing was held on July 28, 1933.

The evidence presented shows that there has been a steady decline in revenues in the Reading exchange due to loss of subscribers. The subscriber list dwindled from 103 telephones in use as of December 21, 1928, to 39 telephones in use on June 30, 1933. The operating deficit was shown to be $136 in 1928 and approximately $817 in 1932, exclusive of return on capital invested.

The schedule of gross monthly rates which the telephone company proposed to place in effect, and which the commission approved, is as follows:

Multi-party business	$2.50
Business extension (net)	.75
Multi-party residence	1.75
Residence extension (net)	.50
City schools and halls	1.75
Rural residence multi-party, ground	1.75
Rural residence multi-party metallic	2.00
Rural schools and hunting camps	1.00

WHY WAIT?

You can't fix the roof when it's raining.

Neither can you install arresters during a lightning storm.

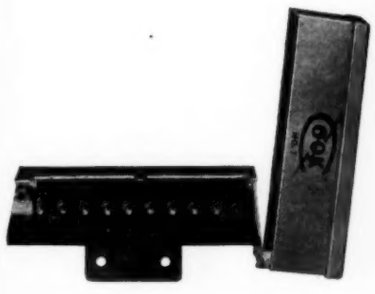
Cook No. 7 Lightning Arrester installed on open leads is a self-liquidating investment.

Prevents service interruptions.

Reduces maintenance.

Saves equipment.

Costs little to install.



COOK ELECTRIC CO.

2700 Southport Avenue

CHICAGO

A discount of 25 cents per month is to be allowed on all local gross rates if paid on or before the 10th day of the month in which the service is rendered.

Rural rates are payable quarterly in advance with a discount of 75 cents if paid on or before the 10th day of the first month of the quarter; 50 cents if paid on or before the 10th day of the second month of the quarter and 25 cents if paid on or before the 10th day of the third month of the quarter.

The only change in the schedule, from that previously in effect, was in the rates for business service. Formerly, individual line business service was furnished at $3.00 per month and gross and two-party line business at $2.75. Under the new rate schedule, multi-party business service will be furnished at a cost of $2.50 per month.

Business subscribers objected on the ground that their five stations would be connected on the same line, which would preclude private conversation. However, the objection was not taken as a serious one because, under the old arrangement, calls placed from business telephones were to either multi-party rural or multi-party town stations.

In view of the fact that the revenue from the operations of the Reading exchange during the past 5½ years has not been sufficient to pay operating expenses or any return on capital invested, the commission ordered the discontinuance of the Reading exchange on October 1. It was provided in the commission order that the subscribers at Reading be served from the Wilmont and Rushmore exchanges in the following manner:

"The five business telephones to be segregated on one line and connected with the Wilmont exchange; the eight residence telephones in the village of Reading to be segregated on one line and connected with the Wilmont exchange; rural subscribers east and west of Reading and generally north of a line running eastward from the south line of section 24, township 103, range 41, be served from the Wilmont exchange; all rural subscribers south of the line mentioned to be served from the Rushmore exchange."

Summary of Commission Rulings and Schedule of Hearings.

ALABAMA.

September 6: Hearing in Birmingham in commission's investigation of the rates of the Southern Bell Telephone & Telegraph Co.

CALIFORNIA.

August 31: Southern California Telephone Co. granted certificates authorizing exercise of rights and privileges granted by cities of Oceanside and Escondido.

September 6: Hearing on rates and practices of a group of small Southern California telephone companies.

GEORGIA.

September 12: Hearing on commission's own citation against all telephone companies operating in the state to show cause why their rates should not be reduced.

ILLINOIS.

September 6: Hearing in Springfield before Commission Lindheimer on application of the Galva Telephone Co. for an order authorizing the issue of promissory notes in the amount of $6,900.

September 8: Hearing in Springfield before Commissioner Lindheimer on application of the Eastern Illinois Telephone Co. for an order authorizing the issue of $3,228.61 of its short-term notes.

KANSAS.

September 13: Hearing in Moundridge, McPherson county, on complaint of certain rural telephone lines and the Moundridge Telephone Co. against the city of McPherson requiring the city to remove all unreasonable interference at its expense.

September 27: Hearing in Chanute, Neosha county, on complaint of the Chanute Rural Telephone Association against the Southwestern Bell Telephone Co. charging excessive rates.

LOUISIANA.

July 25: Combined orders issued in the following five cases: Complaint of residents of the Cedar area exchange of New Orleans against the Southern Bell Telephone & Telegraph Co. asking a reduction in telephone rates.

Complaint of citizens of Shreveport against the Southern Bell company asking a reduction of rates and installation and removal charges.

Investigation instituted on the commission's own motion against the Southern Bell company in regard to telephone rates, charges and practices within the state of Louisiana.

Complaint of citizens of Logansport against the Southern Bell company relative to rates for service in Logansport.

Complaint of residents of Caddo Parish against the Southern Bell Company concerning rates, charges, etc., for service in Shreveport and vicinity.

September 8: Hearing in New Orleans at Monteleone Hotel on the commission's own complaint against the Southern Bell Telephone & Telegraph Co. relative to telephone service in the eighth ward of St. Tammany Parish.

MASSACHUSETTS.

September 18: Hearing in statewide rate investigation of the New England Telephone & Telegraph Co.

MINNESOTA.

August 28: Order issued granting the Fulda Telephone Co. permission to close its exchange at Reading on October 1 and serve subscribers there from its exchanges at Wilmont and Rushmore.

September 6: Hearing in St. Paul in investigation of the differential charge for desk telephones and of the 25-cent monthly additional charge for handset telephones.

September 9: Hearing in Pemberton on application of the Willow Creek Telephone Co. to abandon that portion of line No. 16 out of Mapleton, from village of Pemberton to the Webb Farm, and two stub lines, one of which now serves three subscribers, and furnish telephone service through other facilities.

September 27: Hearing in St. Paul on application of Wm. J. Gratz for telephone service from the Northwestern Bell Telephone Co. at the summer home of Mrs. W. F. Gratz located between Willmar and Spicer.

It was stated that for a number of years past, telephone service has been furnished by the Northwestern Bell company at the summer home of Mrs. Gratz by means of a toll line connected at Willmar—an installation charge of $5.00 being made and a service charge of $1.50 per month, plus ten cents for calls to Willmar.

NORTH DAKOTA.

August 17: Approval granted joint application of the Northwestern Bell Telephone Co. to acquire indirectly the capital stock of the Dakota Central Telephone Co.

August 28: Dakota Central Telephone Co. filed revised copy of section 24 of rates and charges covering service connection charges.

OKLAHOMA.

September 13: Hearing on application of the Watts Telephone Co. asking for permission to discontinue its exchange at Watts.

September 14: Hearing on application of citizens of Oakwood for physical connection of long distance lines between the Oakwood Telephone Co. and the Southwestern Bell Telephone Co.

Since 1904 we have been engaged as manufacturers of

CORDS

for all classes of telephone work

Lenz Electric Mfg. Co.

(Formerly Runzel-Lenz Electric Mfg. Co.)

1751-7 N. Western Ave. Chicago